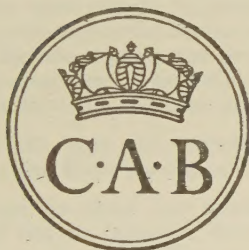


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HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1950



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

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HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1950

Vol. 19, Part 2

45—Acta Tropica. Basle.

- a. SCHEIDEGGER, S., 1950.—"Pathologisch-anatomische Untersuchung des Okapi 'Bambe'. Beitrag zur Frage der Leberveränderungen infolge Helminthiasis." 7 (2), 133-150. [English & French summaries p. 150.]
- b. KREIS, H. A., 1950.—"Die Diagnose des Nematodenbefalles beim lebenden Tier, mit besonderer Berücksichtigung der Befunde beim Okapi 'Bambe'." 7 (2), 151-163. [English & French summaries p. 163.]
- c. BAER, J. G., 1950.—"Etude critique des helminthes parasites de l'okapi." 7 (2), 164-186. [English summary p. 186.]

(45a) A detailed account is given of the pathological anatomy of an okapi which died in the Basle Zoological Gardens in 1949. A generalized infection with helminths was the chief cause of death. Parasites were present in great numbers in the stomach, colon and liver. The epithelium of the parenchymatous organs and the myocardium showed fatty degeneration. The epithelium of the bile-ducts in the liver was markedly altered and presented an appearance similar to precancerosis. The extensive parasitism is attributed to the abnormal conditions under which the okapi had been kept. R.T.L.

(45b) Kreis gives an account of the eggs and embryos found by the Telemann technique in the faeces of an okapi in the Basle Zoological Gardens. R.T.L.

(45c) The helminths reported from the okapi now number 25 species of which 21 are nematodes, two are trematodes and two are cestodes. Baer has critically re-examined the original descriptions and material, and has shown that six of the nematodes and one of the flukes are synonyms. Eleven of these nematode species occur only in the okapi but all are related to genera and species known in other ruminants. *Monodontella giraffae*, which lives in the bile ducts, causes extensive, serious and sometimes fatal damage to this host. *Oesophagostomum rodhaini* is a synonym of *O. okapi*, *Necator okapi* and *Monodontella okapiae* of *M. giraffae*, *Cooperia okapiae* of *C. okapi*, *Parabronema congolense* of *P. okapi*, *P. okapi* (in part) of *P. skrjabini*, and *Haemonchus okapiae* of *H. contortus*. *Cotylophoron congolense* is a synonym of *C. okapi*. Baer regards *Stilesia okapi* as a variety of *S. globipunctata* which he names *S. globipunctata* var. *okapi*. Among the original material Baer has found *Trichuris globulosa* and *T. discolor*. The paper concludes with a key to the 18 valid species found in the okapi. R.T.L.

46—Agricultural Gazette of New South Wales.

- a. HEALEY, J. S., 1950.—"Internal parasites of cattle may cause heavy losses in calves." 61 (4), 203-208.
- b. ANON., 1950.—"Leaf nematode of chrysanthemum controlled by E.605." 61 (5), 247-248.

(46a) In New South Wales helminth infections are a frequent cause of serious economic losses in calves and young heifers. The most important parasites are *Haemonchus contortus*, *Cooperia* spp., *Trichostrongylus* spp., *Ostertagia* spp., *Bunostomum phlebotomum*, *Oesophagostomum radiatum* and *Paramphistomum* spp. Brief accounts are given of each of these forms and of their life-history, treatment and control. R.T.L.

(46b) Good commercial control of chrysanthemum leaf nematode [*Aphelenchoides ritzema-bosi*] can be obtained by spraying with E605 [diethyl *p*-nitrophenyl thiophosphate] at the rate of one part of 20% emulsion in 400 parts of water at three-weekly intervals from early February (in New South Wales) until three to four weeks before cutting the crop. Stronger concentrations may cause damage to older leaves. In dry weather less frequent spraying might suffice. Aphids and leaf-eating caterpillars were also controlled. Great care must be taken in using E605, particularly in keeping it off the skin. M.T.F.

47—American Journal of Hygiene.

- a. SADUN, E. H., KEITH, C. K., PANKEY, M. J. & TOTTER, J. R., 1950.—“The influence of dietary pteroylglutamic acid and of APA liver extract on the survival and growth of the nematode, *Ascaridia galli*, in chickens fed purified and natural diets.” 51 (3), 274-291.
- b. OTTO, G. F. & MAREN, T. H., 1950.—“Studies on the chemotherapy of filariasis. [Parts V-VII.]” 51 (3), 353-395.
- c. LINDQUIST, W. D., 1950.—“Some abnormal host relationships of a rat nematode, *Nippostrongylus muris*.” 52 (1), 22-41.

(47a) A deficiency of vitamin M (pteroylglutamic acid or folic acid) retards the growth of chickens, causes atrophy of the thymus and a reduction in the number of lymphocytes. Eosinophils are increased. Resistance to infection with *Ascaridia galli* is much reduced. Birds which were fed on a purified diet consisting largely of casein, gelatin, cornstarch with mineral salts and vitamins added as required, harboured fewer and shorter worms than did the controls fed natural foodstuffs. Worms from chickens receiving large amounts of liver extract were significantly longer than those from chickens fed dried liver. It was concluded that liver extract contains some substance necessary in large amounts for normal growth of the worms. The substance responsible for this growth may be vitamin B₁₂, the anti-pernicious-anaemia factor. P.A.C.

(47b) Otto & Maren report upon studies on the pharmacology of arsenamide and related arsenicals with special reference to their toxicity in laboratory animals, and on the excretion and concentration of antimonials in blood and other tissues after the injection of trivalent and pentavalent antimonials. In a comparative review of the available therapeutic agents in human and canine filariasis, the value of various compounds is discussed in relation to their effectiveness as primary microfilaricides and primary adulticides. J.J.C.B.

(47c) There was a low percentage of development of *Nippostrongylus muris* in cotton-rats and hamsters submitted to experimental infection. Those worms which did develop were stunted and there was a lag in the prepatent period. No development occurred in guinea-pigs. In the cotton-rat the larvae were retained in the skin and lungs and later produced nodules, but in the laboratory rat the larvae passed through the skin and lungs producing a mild cellular reaction which quickly disappeared. In the guinea-pig, hamster and cotton-rat the cellular reactions were identical. The extended prepatent period stunting and formation of nodules showed a striking similarity to the effects described by Taliaferro & Sarles of immunization of laboratory rats by repeated infections with large numbers of *N. muris* larvae, save for the absence of the precipitate masses which these authors reported in the nodules of immune laboratory rats. It is suggested that a cellular reaction around the larvae, causing their encapsulation and death, is one of the mechanisms whereby abnormal hosts prevent the development of nematodes which have entered their skin. R.T.L.

48—American Journal of Tropical Medicine.

- a. HSÜ, H. F., 1950.—“A preliminary study on the bionomics of *Oncomelania* snails, intermediate hosts of *Schistosoma japonicum*, in Kiangsu and Chekiang Provinces, China.” 30 (3), 397-410.
- b. HUNTER, III, G. W., DILLAHUNT, J. A. & DALTON, H. C., 1950.—“The epidemiology of schistosomiasis japonica in the Philippine Islands and Japan. I. Surveys for schistosomiasis japonica on Mindoro, P.I.” 30 (3), 411-429.

- c. JOHNSTONE, H. G. & JONES, Jr., O. W., 1950.—"Cerebral coenurosis in an infant." 30 (3), 431-441.
- d. HEWITT, R. I., WHITE, E., HEWITT, D. B., HARDY, S. M., WALLACE, W. S. & ANDUZE, R., 1950.—"The first year's results of a mass treatment program with hetrazan for the control of Bancroftian filariasis on St. Croix, American Virgin Islands." 30 (3), 443-452.
- e. POINDEXTER, H. A., 1950.—"Filariasis bancrofti studies in Liberia." 30 (4), 519-523.
- f. SCHUBERT, M., 1950.—"Effect of feeding antimony compounds to mice experimentally infected with *Schistosoma mansoni*." 30 (4), 525-532.
- g. HASKINS, W. T. & LUTTERMOSER, G. W., 1950.—"The comparative toxicities of the antimony derivatives of the four isomeric potassium acid tartrates." 30 (4), 591-592.

(48a) During October and November of 1948, Hsü studied the bionomics of *Oncomelania hupensis* in Soochow, Kashing and Hangchow, and of *O. nosophora* in Chuhsien and Kaihua. In Soochow City the canals are too turbid and foul for the snails to live, but they were very numerous in the irrigation ditches and in the terminal canals and to a lesser degree in certain portions of the tertiary and secondary canals and occasionally in the primary canals in the surrounding country. In the rice fields they occurred chiefly in the vicinity of the inlets of the irrigation ditches. None were present in the ponds. The amounts of humus, moisture, shade and vegetation in or on the soil of the banks were the decisive factors. In the other places visited the habitats were similar, but *O. nosophora* was more readily found in the rice fields and at Chih Huai Pan on the banks of mountain brooks. On one occasion *Oncomelania* were found climbing a tree up to 2.25 metres above the bank of a tertiary canal. Pairing of both species of *Oncomelania*, and young forms, were observed in the irrigation ditches but not on the canal banks in October and November. It is pointed out that *Oncomelania* occurs in the temperate as well as the subtropical regions of China.

R.T.L.

(48b) This is a report of an investigation on the status of schistosomiasis japonica in Mindoro, the seventh largest island in the Philippine Archipelago. Maps indicate the areas surveyed, which included San Jose near Bugsanga River on the southern western plain, and the Lake Naujan region on the northeastern coastal plain near Calapan. A new endemic focus was found at Casiligon, near Pola. Infected snails were found at Malayas, Malabo, San Narcisco and Casiligon. The vector, *Oncomelania quadrasi*, was frequently but not invariably associated with water hyacinths. The water had a pH of 7.0 or higher. Only 17 out of the 1,622 snails examined were infected. Eight out of 14 dogs, 9 out of 13 pigs and one out of 6 Carabao calves (*Bos mindorensis*) showed *Schistosoma japonicum* eggs in the faeces.

R.T.L.

(48c) Cerebellar exploration of a male infant 26 months old, admitted to hospital with right hemiparesis and marked ataxia, revealed 20 daughter cysts of *Multiceps multiceps* ranging from 1-10 mm. in length. At autopsy numerous other cysts were found clustering along the brain stem from the pituitary gland to the foramen magnum. Two coenuri were present in the frontal lobes. The difficulties of specific identification of a coenurus are discussed. This is the first case of cerebral coenurosis reported from the Western Hemisphere.

R.T.L.

(48d) One year after a mass therapy campaign for the control of Bancroftian filariasis by hetrazan in St. Croix, microfilariaemia in 65 patients was reduced by 96.5% to 99.6%; positive cases in this group were reduced by 79.4%. The average microfilarial count in five selected communities resurveyed one year after treatment was reduced by 88.8% and the positive microfilaria cases were reduced by 60%. There were no disturbing systemic reactions. It is believed that these results indicate that mass therapy with hetrazan will eliminate a large proportion of microfilariae within an endemic area.

R.T.L.

(48e) In Liberia the distribution of *Wuchereria bancrofti* is uneven. The incidence is highest in the southeastern part of the country, especially in the Tchien district (14%).

the Webo and Greenville districts of Maryland and Sinoe Counties (15%), and the lower Buchanan area of Grand Bassa County (20%). Of 100 individuals of the official class, including their families, who lived apart from the native quarters in Greenville and used some anti-mosquito-bite measures, none were positive although 16.7% of the 850 natives in that town had microfilariae. An unexplained anadictotic wave in the microfilarial count in the afternoon or early evening was observed. R.T.L.

(48f) Mice and hamsters experimentally infected with *Schistosoma mansoni* have been cleared of these parasites when fed with several different new antimony compounds [of which the chemical structures but not the names are given]. The hamsters were more readily cleared than the mice after the same dose level. Three of the new compounds cleared the mice completely and three or four others gave almost complete clearance. None of the drugs were appreciably toxic at the levels used. Intraperitoneal injections of 500-1,000 cercariae failed to produce schistosome infection in guinea-pigs. R.T.L.

(48g) No significant difference in toxicity was found among the four isomers, viz. potassium antimonyl D,L-tartrate, potassium antimonyl L-tartrate, potassium antimonyl meso-tartrate and potassium antimonyl D-tartrate. For the last named a commercial preparation of U.S.P. tartar emetic containing 36.6% antimony was used. R.T.L.

49—American Midland Naturalist.

- a. SEAMSTER, A. P., 1950.—"Developmental studies concerning the eggs of *Ascaris lumbricoides* var. *suum*." 43 (2), 450-470.
- b. HANSEN, M. F., 1950.—"A new dilepidid tapeworm and notes on other tapeworms of rodents." 43 (2), 471-479.

(49a) Seamster has made a detailed study of the temperature and humidity requirements of the eggs of *Ascaris lumbricoides* var. *suum* using a "Climatizer" unit and a work chamber with an externally located, electrically operated thermograph, which accurately recorded conditions inside the chamber for each 24-hour period without opening the doors. The optimum temperature for embryonation of *Ascaris* eggs was found to be 31.1°C. (88°F.) and the time required was 200 hours. The maximum temperature was 34.4°C. but only 10% developed to the motile-embryo stage; 316 hours were required. Exposure at 37.8°C. proved lethal in eight days. Eggs smeared on glass slides and exposed to relative humidities of 80%, 85% and 95% at 31.1°C. developed only to the morula stage and were desiccated beyond recovery after eight days under these conditions. At a relative humidity of 100% at 31.1°C. eggs developed at the same rate as in water at the same temperature. The daily egg production of 16 worms *in vitro* ranged from a minimum daily average of 19,400 to a maximum daily average of 475,000. The eggs were killed in at least three days by exposure to fumes of concentrated ammonium hydroxide. Development was not affected by D.D.T. (50%), sulphanilamide solutions (1% and 2%), ammonium sulphate, ammonium chloride or ammonium nitrate at a constant temperature of 31.1°C. R.T.L.

(49b) Rodents belonging to eight genera and eight species, captured in the vicinity of Lincoln, Nebraska, harboured five genera and seven species of tapeworm. Of these *Choanotaenia nebraskensis* n.sp., described and figured from *Microtus ochrogaster*, is differentiated from *C. spermophili* n.comb. and *C. peromysci* n.comb., both formerly species of *Prochoanotaenia*. A key is given to the six species of *Choanotaenia* found in mammals. *Hymenolepis citelli* is considered a synonym of *H. diminuta*. R.T.L.

50—Animal Health Leaflet. Ministry of Agriculture and Fisheries. London.

- a. ANON., 1950.—"Common worms of the pig." No. 25, 4 pp. [Superseding *Adv. Leaflet. Minist. Agric. Fish., Lond., 1942, No. 312.*]

51—Annales de Parasitologie Humaine et Comparée.

- a. TALICE, R. V. & GURRI, J., 1950.—"Relation entre le développement de *Cysticercus racemosus* et le degré de malignité de la cysticerose correspondante." 25 (3), 121-140.
- b. DOLLFUS, R. P., 1950.—"Variations anatomiques chez *Distomum cloacicola* Max Lühe 1909." 25 (3), 141-149.
- c. CHABAUD, A. G., 1950.—"Cycle évolutif de *Synhimantus (Desportesius) spinulatus* (Nematoda Acuariidae)." 25 (3), 150-166.
- d. FAIN, A. & HERIN, V., 1950.—"*Parafilaria bovicola* Tubangui (1934) au Ruanda-Urundi. Description du mâle." 25 (3), 167-177.
- e. OVAZZA, M., 1950.—"Quelques observations sur la biologie et plus particulièrement le cycle de *Liponyssus bacoti* Hirst, 1913." 25 (3), 178-187.
- f. SAINT-PRIX, L., 1950.—"Sur la syngamose humaine dans le département de la Martinique." 25 (3), 235-236.

(51a) Talice & Gurri interpret the histological picture presented by stained serial sections of *Cysticercus racemosus* obtained surgically on two occasions from the fourth ventricle of the brain of a 53-year-old man. This is the first case to be reported from Uruguay. One of the two pieces obtained was a single vesicle united by a stalk to many membranous extensions. The other was composed of many solitary pedunculate vesicles. There were no invaginations, scolices or hooks in any of the vesicles. Talice & Gurri contend that proliferation takes place by progressive and abnormal growth of certain regions of the wall of the primary vesicle, which form digitations and villousities which become sessile or pedunculate. This is followed by the condensation and regressive development of the fibrils in the thickened zones of the wall, and by the formation of lacunae which unite to form larger spaces. This process spreads, in the same order, into the digitations and villousities. The distension of the wall of the primary vesicle, caused by pressure of the intravesicular fluid, is said to lead to the formation of secondary vesicles. Accepting the view that the growth of this larval form is unlimited, Talice & Gurri insist on the importance of a complete extirpation of *C. racemosus* during surgical operation. H.C.

(51b) Of the numerous distomes which parasitize *Natrix natrix*, *Distomum assula*, *D. gracillimum* and *D. cloacicola* have not yet been given their generic position. Dollfus discusses the last named and shows that although it resembles some species of *Glypthelmins*, *D. cloacicola* belongs to the Lepodermatidae (=Plagiorchidiidae) but none of the numerous genera of this family combine the presence of symmetrical or subsymmetrical testes with a Y-shaped bladder bifurcating behind the testes. For these reasons *Paralepoderma* n.g. is created with *P. cloacicola* as type species. R.T.L.

(51c) *Synhimantus (Desportesius) equispiculatus* var. *spinulatus*, described by Chabaud & Campana from *Bubulcus ibis*, is now raised to specific rank on account of the marked difference in the lengths of the spicules, which approach those of *S. invaginatus* rather than *S. equispiculatus*. Its life-cycle has been traced experimentally in the ostracods *Cyprinotus salinus* and *Pionocypris vidua vidua*. Encapsulation occurred in *Discoglossus pictus* and *Barbus* (?). The morphology of the four larval stages is described and figured. R.T.L.

(51d) The male of *Parafilaria bovicola* is now described and figured for the first time. It differs markedly from that of *P. multipapillosa*, notably in the presence of a gubernaculum 44-56 μ long. The right spicule measures 145-158 μ and the left spicule 332-385 μ . The material was collected from a cow in Ruanda-Urundi. R.T.L.

(51f) Saint-Prix reports the occurrence of three cases of human syngamiasis in Martinique (Antilles), in all of which adult worms were recovered and in one instance a diagnosis of *Syngamus kingi* made. He also reports the occurrence in other patients of clinical signs which could only be explained by *Syngamus* infection, although this was not confirmed, and he is of the opinion that human syngamiasis may be more prevalent in the Antilles than has hitherto been suspected. J.J.C.B.

52—Annali della Sperimentazione Agraria.

- a. MAMELI CALVINO, E., 1950.—"I nematodi delle piante da fiore in Italia. Nota I." Nuova serie, 4 (1), 119-142. [English summary p. 141.]
- b. MAMELI CALVINO, E., 1950.—"I nematodi delle piante da fiore in Italia. Nota II.—Mezzi di lotta." Nuova serie, 4 (1), 143-152. [English summary p. 152.]

(52a) Mameli Calvino records occurrences of nematode attack on 77 different flowering plants in Italy between 1926 and 1949. She also describes briefly the symptoms met with. There are 24 plants recorded for the first time as nematode hosts and three plants with additional nematode parasites. J.B.G.

(52b) Mameli Calvino deals in this second paper with methods of nematode control. Mention is made of various soil fumigants, of the hot-water treatment and of some chemical dip methods. Good horticultural methods and husbandry are advocated. There is a short section on specialized races and one on revivescence. J.B.G.

53—Annals of Applied Biology.

- a. ANSCOMBE, F. J., 1950.—"Soil sampling for potato root eelworm cysts. A report presented to the Conference of Advisory Entomologists." 37 (2), 286-295.
- b. WESTON, W. A. R. DILLON, 1950.—"Clover sickness." 37 (2), 320-323.
- c. GOODEY, T., 1950.—"Stem eelworm and clover." 37 (2), 324-327.

(53a) Anscombe quotes in full the technique adopted by the National Agricultural Advisory Service [England] for soil sampling for potato-root eelworm cysts. He then gives an account of some experimental sampling done by the Advisory Entomologists and investigates the statistical problems encountered. He deduces a statistic k which is a measure of the uniformity of infestation, a high value of k being associated with high uniformity, a value of infinity for this parameter corresponding to perfect uniformity. Examination of 12 sets of samples disclosed high variability in this parameter from field to field, but values of at least 2 are encountered in the majority of cases. Under such conditions field and laboratory errors will be approximately equal if 25 borings be taken per field and 100 gm. of soil be examined for a mean infestation of 0.5 viable cysts per gramme. For very low infestations a decreased value of k is to be expected, and an estimate is offered for the percentage standard error of the mean infestation. It is suggested that unless the sample size in grammes is at least 50 times the number of borings taken, then nearly all the error is laboratory and not field error. Further notes follow on the significance of negative examinations. He concludes that the recommended technique, while useful in the survey of a seed district, is hardly satisfactory for examination of single fields. D.W.F.

(53c) At a meeting of the Association of Applied Biologists held on 2nd December 1949, devoted to the subject of clover breeding, diseases and pests, Goodey contributed a paper on stem eelworm and clover. He dealt with the history of stem eelworm infections of clover in Europe since the early 19th century, and brought out the main biological differences between the stem eelworm affecting rye and oats and that attacking clover. Symptoms of disease set up by the true clover race were described and it was shown that the parasite can be seed-borne. Control by soil fumigation, resistant varieties of clover, and weed hosts of the nematode were briefly discussed. T.G.

54—Annals of Tropical Medicine and Parasitology.

- a. BERTRAM, D. S., 1950.—"Studies on the transmission of cotton rat filariasis. III.—A natural method for quantitative transmission and its application to a chemoprophylactic test of some drugs; with a statistical analysis by P. Armitage." 44 (2), 107-123.
- b. ROBERTS, E. W., 1950.—"Studies on the life-cycle of *Fasciola hepatica* (Linnaeus) and of its snail host, *Limnaea (Galba) truncatula* (Müller), in the field and under controlled conditions in the laboratory." 44 (2), 187-206.

(54a) Bertram, with the aid of seven tables, deals with the quantitative results in the natural transmission of *Litomosoides carinii* to cotton-rats by small numbers of the

mite, *Liponyssus bacoti*, and the application of this method to a test of the chemoprophylactic action of *p*-melaminylphenylstibonate (MSb), stilbamidine and antrypol. Effective prophylactic action was shown by MSb in preventing infections at dosages of 250, 500 and 1,000 mg. per kg. body-weight. A statistical analysis of the data by P. Armitage is appended.

R.T.L.

(54b) Roberts has studied the life-history of *Limnaea truncatula* in the laboratory and in the field. At room temperature (17° to 19°C.) the embryos hatched on the 17th to 22nd day. At 25°C. hatching occurred on the 8th to 12th day. None of the hatched embryo snails withstood drying for more than four hours. Adult *L. truncatula* cannot withstand drying for longer than 15 days at 17°C. in the laboratory, although in the field they can survive for longer periods. Newly deposited egg masses left at 5°C. for 14 days or on solid ice for seven days subsequently hatched in 10–12 days at 25°C. The apparent absence of snails from an area where sheep were known to be infected is attributed to faulty examination of the ground. Although other species of *Limnaea* have been successfully infected, only *L. truncatula* was actually found to be infected in the field. The eggs of *Fasciola hepatica* do not develop at less than 10°C. and are killed at 37°C. The optimum temperature is 25°C. when development is completed in 14 days. At 17°C. the eggs hatched in five weeks. The miracidia penetrate the snail's mantle and foot but those in the foot degenerate. At 25°C. cercariae emerged on the 38th day and at room temperature on the 57th day. At 5°C. development is completely suspended. Between 476 and 544 cercariae emerged in three to six days, after which the snails died both in the laboratory and in the field. Drought in August 1947 considerably reduced the total snail population and the proportion of those infected. Continuous mild wet weather in 1948 enabled the snails to be continuously infected from June to October. Control measures could be effective if a molluscicide was used during May and again during late summer, especially if combined with routine treatment of all sheep entering the area.

R.T.L.

55—Archiv für Experimentelle Pathologie und Pharmakologie.

- a. ERHARDT, A., 1950.—“Untersuchungen über die Behandlung der Spulwurminfektionen von Katze, Hund und Fuchs mit dem Mandelsäureisoamylester.” 209 (2/3), 130–137.

(55a) Erhardt has successfully treated ascarid infections in cats, dogs and foxes with the iso-amyl ester of mandelic acid (sold under the name “Mandaverm”). A single dose of 0.5 c.c. per kg. body-weight administered by stomach tube was efficacious in *Toxocara cati* infection in cats, and 1.0 c.c. per kg. body-weight to dogs (in capsules) successfully eliminated *Toxocara canis*; doses of from 0.5 to 1.0 c.c. per animal were sufficient to cure *Toxocara* infections in fox cubs. It is also reported that Hupka (Hanover) has eliminated *Parascaris equorum* from horses by administering (with a sound) 0.5 to 0.6 gm. “Mandaverm” per kg. body-weight. Therapeutic doses were very well tolerated by all animals. “Mandaverm” (given in the same doses as for ascarids) was ineffective against *Taenia taeniaeformis* and *Ancylostoma caninum* in cats, and against *Passalurus ambiguus* in rabbits.

A.E.F.

56—Bimonthly Bulletin. North Dakota Agricultural Experiment Station.

- a. EVELETH, D. F., 1950.—“Control of stomach and intestinal worms of sheep.” 12 (3), 80.

57—Boletín de la Asociación Médica de Puerto Rico.

- a. TORRES, J. M., 1950.—“Treatment of strongyloidosis with hetrazan. Report of 12 cases.” 42 (1), 30–33.

(57a) Torres records that hetrazan proved to be of no therapeutic value in 12 cases of infection with *Strongyloides stercoralis*. Ten patients received 2 mg. per kg. body-weight thrice daily, by the mouth, for eleven consecutive days. Two patients received the

same dosage for only five consecutive days. No toxic effects of the drug were observed. Anaemic and albuminuric states, which were present in four of the patients, improved in spite of hetrazan administration. Only one patient developed negative stools. P.L.l.e.R.

58—Boletín de Informaciones Parasitarias Chilenas.

- a. NEGhme, A., BERTÍN, V., TAGLE, I., SILVA, R. & ARTIGAS, J., 1950.—“*Diphyllbothrium latum* en Chile. II.—Primera encuesta en el Lago Colico.” 5 (2), 16-17. [English summary p. 17.]

(58a) One case of *Diphyllbothrium latum* infection was recognized in a faeces survey of 81 inhabitants at Lake Colico in the province of Cautín, Chile. Spargana were collected from three specimens of rainbow trout (*Salmo irideus*?). R.T.L.

59—Boletín de la Oficina Sanitaria Panamericana.

- a. GONZÁLEZ, C. L., POTENZA, L., VOGELSANG, E., ANDUZE, P. J. & TORRES E., P., 1950.—“Oncocercosis en Venezuela.” 29 (2), 147-152. [English summary p. 152.]

(59a) About one-quarter of persons examined in eastern Venezuela showed *Onchocerca* infection. Although eye lesions were seen, no case of blindness was recorded. The proportion of non-clinical cases was high. Places at an altitude as low as 250 metres above sea level were highly infected. R.T.L.

60—British Journal of Pharmacology and Chemotherapy.

- a. BUEDING, E. & OLIVER-GONZÁLEZ, J., 1950.—“Aerobic and anaerobic production of lactic acid by the filarial worm, *Dracunculus insignis*.” 5 (1), 62-64.
b. HAWKING, F., SEWELL, P. & THURSTON, J. P., 1950.—“The mode of action of hetrazan on filarial worms.” 5 (2), 217-238.
c. SEWELL, P. & HAWKING, F., 1950.—“Chemotherapy of experimental filariasis.” 5 (2), 239-260.

(60a) Bueding & Oliver-González found that glucose utilization and lactic acid production by *Dracunculus insignis* were not greatly affected by the presence or absence of oxygen. A cyanine dye at a concentration of 1 : 5,000,000 inhibited respiration but did not affect glycolysis. W.P.R.

(60b) Hawking et al. conclude from experimental work that hetrazan acts on the microfilariae of *Litomosoides carinii* by modifying them so that they are held in the liver and destroyed there by phagocytes. Soon after infected cotton-rats are treated with hetrazan there is a heavy accumulation of microfilariae in the liver and a corresponding decrease in the blood and in the lungs. After 6-18 hours the number decreases in the liver, where the microfilariae are apparently destroyed. The action of hetrazan *in vitro* on microfilariae is non-existent, and serum from a hetrazan-treated animal is also inactive. The action of hetrazan on adult worms *in vivo* is insignificant and does not promote phagocytosis. There is no action on adult worms *in vitro*. Larval stages of *Dirofilaria repens* developing in the mosquito are not affected by hetrazan, but it may destroy the infective larvae of *L. carinii*. J.J.C.B.

(60c) Sewell & Hawking tested 220 substances for activity *in vivo* against *Litomosoides carinii*. Some activity against adult worms was found in all of 18 antimony compounds which were studied, and in four of 12 arsenic compounds. One compound of the diguanide series, proguanil, was slightly active. Microfilariae were directly affected by two only: hetrazan and *N,N,N'*-trimethyl-*N'*-diethylcarbamyloethylene diamine. J.J.C.B.

61—British Medical Journal.

- a. SIUNG, O. H., 1950.—“‘Benadryl’ in treatment of oxyuriasis.” Year 1950, 1 (4657), 822.
b. CUTTING, P., 1950.—“Vesical carcinoma with bilharzia.” [Correspondence.] Year 1950, 1 (4666), 1371-1372.

- c. HARLAND, J. C., HUMBLE, J. G. & MANN, P. G., 1950.—“*Diphyllobothrium* infestation and anaemia in Great Britain.” Year 1950, 2 (4672), 188–192.
d. ANON., 1950.—“Imported helminthic infections.” [Annotation.] Year 1950, 2 (4672), 206.
e. STEVENSON, F. H., 1950.—“*Diphyllobothrium* infestation.” [Correspondence.] Year 1950, 2 (4675), 418.
f. HARTSTON, W., 1950.—“Imported helminthic infections.” [Correspondence.] Year 1950, 2 (4677), 526.

(61a) Infections with *Enterobius vermicularis* can be cured by the daily administration of 50 mg. of “Benadryl” in a tablet specially coated to prevent disintegration before reaching the lower gut. The dosage recommended is one tablet daily for children between 2 and 5 years of age, one twice daily for those between 6 and 12 years, and one thrice daily for those over 12 years. The treatment is maintained for 10 days.

R.T.L.

(61c) This case of *Diphyllobothrium latum* infection occurred in a Finnish domestic servant who had been living in England for two years. In an addendum to the paper a second case, also of Finnish origin, is briefly recorded. This patient had a history of tape-worm infection since 10 years of age. The blood picture was normal. The authors point out that the number of Estonian, Latvian and Lithuanian nationals resident in Great Britain in 1949 totalled 26,745, while the number of Finns totalled 1,208. These immigrants came from areas known to be heavily infested. Should they reside in rural areas there may be grave risk of infecting fish-bearing rivers and lakes. As there are about two million amateur freshwater fishermen in Britain, it is not improbable that this infection may become endemic as in North America.

R.T.L.

(61d) Although the influx of foreign nationals into Britain in recent years may not affect the normal incidence of *Ascaris*, *Trichuris* and *Enterobius*, there has been an upward trend of *Cysticercus bovis* in cattle in several parts of Britain. Although a corresponding increase in the incidence of *Taenia saginata* has not yet been established, it is pointed out that in Denmark there was a rapid rise in 1941 to 1947 in the number of patients admitted to hospital with *T. saginata* infection, which coincided with a rise in the incidence of *C. bovis* in the slaughterhouses. The possibility of *Diphyllobothrium latum* becoming endemic is by no means remote in view of the large number of recent immigrants from eastern Europe.

R.T.L.

(61e) Stevenson now reports a case of *Diphyllobothrium latum* with anaemia seen in Britain in 1936. The patient, aged 43, had spent some time in northern Europe during the first World War where he and army colleagues had often eaten inadequately cooked fish. As early as 1923 he had been diagnosed as suffering from pernicious anaemia. In 1936 he had macrocytic hyperchromic anaemia: 3·8 million red blood corpuscles and 4% eosinophils with occasional bouts of diarrhoea. His stools contained a few eggs of *Diphyllobothrium*. The parasite was evacuated after treatment with filix mas.

R.T.L.

(61f) Hartston recalls that during a faeces survey, 99 out of 100 apparently normal uncomplaining West African soldiers stationed at Benghazi in 1945 showed helminth ova or larvae of: *Taenia saginata* (3), *Ascaris lumbricoides* (31), *Trichuris trichiura* (59), hookworm (55), *Trichostrongylus colubriformis* (77), and *Strongyloides stercoralis* (14). Seventy-eight of the men showed an eosinophilia of 10% to 40%. Hartston points out that servicemen, civilians and immigrants returning to Britain from countries where helminthiasis are common may harbour one or more species acquired abroad which may give rise to deceptive or equivocal symptoms, while lung invasion by larval stages may complicate diagnosis especially if accompanied by changing areas of radio-opaque pulmonary collapse or consolidation and marked eosinophilia. In some cases microscopical examination of the sputum and stool can be very helpful. In young children ova and developing forms of *Enterobius vermicularis* may sometimes be demonstrated in purulent nasal discharge.

R.T.L.

62—British Veterinary Journal.

- a. QUIN, A. H., 1950.—“The control of equine strongylosis and periodic ophthalmia with a ration-additive.” 106 (3), 116–118.

(62a) Quin slightly elaborates his previous report [for abstract see Helm. Abs., 19, No. 41a], where it is claimed that a composite ration-additive controlled equine strongylosis and “moon blindness”. Further details of the composition of this supplement are given.

J.W.G.I.

63—Bulletin Agricole du Congo Belge.

- a. JUSSIANT, A. & CONZEMIUS, 1950.—“Contribution à l'étude de la syngamose des gallinacés.” 41 (1), 131–136.

(63a) Syngamus infection is reported to be one of the most disastrous of poultry diseases near Coquilhatville, sometimes killing entire flocks of young chickens and turkey poults. Jussiant & Conzemius obtained no success in treatment with intratracheal injections of carbon tetrachloride in cottonseed oil, iodized glycerin, 8% alcoholic solution of salicylic acid, 5% sodium salicylate solution, 10% emulsion of D.D.T., 10% emulsion of phenothiazine, 5% copper sulphate solution or 10% thymol in oil. *In vitro* experiments having shown that two drops of Lugol's iodine solution instantaneously killed four *Syngamus trachea* in about 2 c.c. of water the following mixture was prepared: iodine 1 gm., potassium iodide 2 gm., distilled water 250 gm. One part of this mixture in three parts water proved harmless, highly effective and of low cost. The dosage recommended is $\frac{1}{8}$ c.c. for birds three weeks old, $\frac{1}{4}$ c.c. for those 5–6 weeks old, $\frac{1}{2}$ c.c. for those 2–4 months old, and 1 c.c. to 2 c.c. for adult birds.

R.T.L.

64—Bulletin of the Johns Hopkins Hospital.

- a. LIU, C. & BANG, F. B., 1950.—“The natural course of a light experimental infection of schistosomiasis japonica in monkeys.” 86 (4), 215–233.

(64a) Liu & Bang, reporting on the natural course of light experimental infections of schistosomiasis japonica in 15 *Macacus philippinensis*, record that the average incubation period was 36–37 days. Egg production, estimated by the acid-ether-xylol method, was found to vary from day to day. Sudden changes in diet had no apparent effect on egg production. Histopathological changes, illustrated by photomicrographs, consisted of pseudotubercles where eggs had been arrested in the liver, the intestinal wall and the lungs. One monkey which died three years after exposure to 200 cercariae showed a slight cirrhosis of the liver in addition to the pseudotubercles in the liver etc. Liver biopsies in nine animals showed pseudotubercles in that organ but no appreciable cirrhosis or remains of old degenerated eggs. The authors observe that it remains to be ascertained whether the cirrhosis of the liver, a frequent lesion in chronic schistosomiasis in man, is due to liver damage plus a dietary deficiency. Monkeys were still passing eggs $4\frac{1}{2}$ years after infection but the eggs seemed more difficult to detect. As most of the monkeys were still alive at the time when the article was written, no conclusions could be drawn about the incidence of pulmonary complications in these animals.

P.L.L.R.

65—Bulletin de la Société de Pathologie Exotique.

- a. HARANT, H. & FABREGAT, 1950.—“Un nouveau cas de taeniasis à *Dipylidium*.” 43 (3/4), 157.
- b. CANET, J., 1950.—“La filariose humaine en Cochinchine: recherches épidémiologiques en pays Mol.” 43 (3/4), 216–226; (5/6), 332–354.
- c. RANDRIAMBELO, P., 1950.—“La filariose dans la région de Farafangana.” 43 (3/4), 247–248.
- d. SCHNEIDER, J., 1950.—“Traitement de la filariose à *F. loa* par la 1-diéthyl-carbamyl 4-méthylpipérazine.” 43 (5/6), 270–275. [Discussion p. 275.]
- e. MONTESTRUC, E., BLACHE, R. & LABORDE, R., 1950.—“Action du 1-diéthyl-carbamyl 4-méthylpipérazine sur *Filaria ozzardi*.” 43 (5/6), 275–278. [Discussion p. 278.]

- f. BONNIN, H. & MORETTI, G. F., 1950.—"Preuves clinique et biopsique de l'action létale d'un dérivé de la pipérazine sur la filaire *Loa loa* adulte." 43 (5/6), 279-282.
- g. GERMAIN, A., ANDRE, L. & MARTY, J., 1950.—"Filarioses à *A. perstans* et à *L. loa* traitées par le 3799 RP." 43 (5/6), 283-285.
- h. MAUZE, J. & LANGUILLON, J., 1950.—"Le 1-diéthyl-carbamyl-4-méthylpipérazine ou Notézine dans la chylurie filarienne en Guadeloupe. (Note préliminaire)." 43 (5/6), 285-287.
- i. TALICE, R. V., 1950.—"Épidémiologie de la trichinose." 43 (5/6), 288-290.
- j. HECKENROTH, F., BÉCUWE, R., MAYAN, L. & LEROUX, G., 1950.—"Filarioses (*loa* et *perstans*) et dérivés de la pipérazine." 43 (5/6), 354-363.

(65b) Canet undertook in 1947 a survey of the incidence of filariasis in the Moi country of Cochin-China, among the three races of workpeople on the rubber plantations of Honquan and of the Song-Be, at the edge of the High Plateau of the hinterland, province of Thu Dau Mot. Tonkinese labourers coming mainly from the deltas of the north showed an infection rate of 12·32% of 422 persons examined immediately on arrival. The parasite involved was *Wuchereria bancrofti* in every case except one of *W. malayi*, and the periodicity was markedly nocturnal. In Tonkinese who had been some time in Cochin-China the incidence was between 9% and 15%, but tended to decrease slightly with the duration of sojourn. In 2,000 examinations of Cochin-Chinese coming from lower Cochin-China, only two positives (0·1%) were found, both involving *W. bancrofti*. The incidence among 267 Cochin-Chinese who had been at least two years in the region was 1·12%. Infection was relatively much more frequent in the Mois of the Stieng tribe, primitive people living in the forests near the plantations. Nearly 7,000 of these people were clinically examined, and blood tests were carried out on 3,743, including 2,581 adults and 1,162 children belonging to 43 villages. The diurnal microfilarial rate in these villages was 2·38% to 33% (average 9·91% of the adults, 12·54% of the men, 6·93% of the women, 3·78% of the children). The nocturnal rate was even higher, being 40·86% in one village where the diurnal rate was 30·92%. Small morphological variations were noted among the microfilariae from the Mois, but they are all considered to be *W. bancrofti*. There was an almost total absence of clinical symptoms among the Mois, and the numbers of larvae were small, only 2-3 embryos per microscope field. Eosinophilia was 9% on the average, rarely as high as 20%. Finally, a group of Cambodians living near one of the plantations was examined, but no microfilariae were found in 500 adults tested. The vector appears to be *Culex quinquefasciatus* (*fatigans*), the only species found infected. The incidence in mosquitoes in a Stieng village was 6%.

E.M.S.

(65c) Bancroftian filariasis is very common throughout Farafangana, Madagascar. Of 377 persons examined in the district of Vangaindrano, 40% showed microfilariae in the night blood.

R.T.L.

(65d) Schneider reports very favourably on the results of hetrazan treatment of 71 cases of filariasis due to *Loa loa* infection, in which the disappearance of microfilariae and of clinical signs of the disease consistently followed upon treatment. He also stresses the importance of giving antihistamine drugs during the early part of the course, in order to counteract the anaphylaxis which often occurs and which in his opinion is due to the wholesale destruction of microfilariae by the hetrazan.

J.J.C.B.

(65e) Montestruc *et al.* report upon the action of Notézine (=hetrazan) on *Mansonella ozzardi* and *Wuchereria bancrofti* infections in three individuals, two of whom were harbouring *M. ozzardi* only and the third *M. ozzardi* and *W. bancrofti*. The treatment was successful in eradicating the microfilariae of *M. ozzardi* but less so than with those of *W. bancrofti*. It also cured the vertigo, persistent headache and insomnia which in the authors' opinion were due to *M. ozzardi* infection.

J.J.C.B.

(65f) Bonnin & Moretti observed elongated nodules suggestive of the presence of dead adult worms under the skin of one case in six of individuals treated for loaiasis with hetrazan. In one of these a biopsy was performed and a dead worm was found which,

from a histological study of the surrounding tissues, was apparently killed by the action of the drug. J.J.C.B.

(65g) Germain *et al.* report the disappearance of microfilariae of *A. perstans* from the blood of a Senegalese following treatment with Notézine (=hetrazan), and also the cure of clinical signs of infection with *Loa loa* in another individual. The fact that hitherto *A. perstans* infection has often exhibited a resistance to this treatment indicates the importance of administering more than one course of treatment in this case. J.J.C.B.

(65h) Mauzé & Languillon successfully treated three cases of filarial chyluria due to infection with *Wuchereria bancrofti* with Notézine (=hetrazan) and remark upon the advantages of administering this drug. J.J.C.B.

(65i) By artificial digestion *Trichinella spiralis* cysts were found in three out of 100 diaphragms taken from bodies in the anatomy room at Montevideo and 12 cases were diagnosed in rural patients who had suggestive symptoms and an eosinophilia of 30% to 70%. Talice considers that in pig rearing a certain amount of trichinosis is inevitable. Inspection by trichinoscope at abattoirs will not eliminate lightly infected animals. Trichinosis is to a greater or less degree a rural infection and may be endemic in any country where pigs are fed on pork offals. Owing to its variable manifestations it may often be overlooked clinically. Routine artificial digestion of human diaphragms is the only reliable means of revealing its epidemiological significance. R.T.L.

(65j) Notézine (=hetrazan) was effective in a case of loiasis of 14 years' standing, when administered at a total dose of 3.4 gm. over a period of ten days. The patient developed a papular skin eruption, headache, anorexia, muscular pain, insomnia, and an enlarged inguinal lymph node, persisting for three weeks; administration of an anti-histamine drug relieved these symptoms only slightly. No microfilariae were seen from 48 hours after the treatment began or during four months' subsequent observation. The drug was ineffective in a case of *Acanthocheilonema perstans* infection in an 18-year-old negro, who received four courses of treatment of 3.4 gm. in ten days, 4.0 gm. in ten days, 4.4 gm. in 11 days, and 11.2 gm. in 21 days in that order, with intervals between courses of 14, 28 and 24 days respectively. The treatment was well tolerated. E.M.S.

66—Bulletin. Texas A. & M. College Agricultural Extension Service.

- a. BANKS, W. C. & DEER, J. A., 1950.—"Internal and external parasites of poultry." No. B-173, 15 pp.

67—California Agriculture.

- a. SHARP, P. F., WEEKS, W. F. & WILDE, W. G., 1950.—"California sugar beet research data obtained by scientists and applied by growers effectively increased production efficiency and yield." 4 (7), 12-15.

(67a) In this popular summary, Sharp *et al.* briefly refer to the beet and root-knot eelworms as important parasites of sugar-beet in California. For the former, three-year or four-year rotations avoiding chenopodiaceous and cruciferous hosts are possible; for the latter it is more difficult to find immune hosts, but cereals are the most satisfactory. B.G.P.

68—Canadian Journal of Comparative Medicine.

- a. KINGSCOTE, A. A., 1950.—"Liver rot (fascioloidiasis) in ruminants." 14 (6), 203-208. [French summary p. 208.]

(68a) *Fascioloides magna* is widely established in the deer, elk and moose of the Province of Ontario. Of 203 deer examined, 13.2% were found to be infected. During the past decade 1,200 head of cattle and sheep have suffered or died from this infection. The use of hexachlorethane as an anthelmintic, and of copper sulphate as a molluscicide, has given a considerable measure of control. R.T.L.

69—Canadian Journal of Public Health.

- a. KUITUNEN-EKBAUM, E. & JAMES, D. M., 1950.—“Diphenan in the treatment of enterobiasis.” 41 (4), 167-169.

(69a) Trials with Diphenan (*p*-benzylphenyl carbamate) indicate that although it is not a completely effective drug for the treatment of all cases of enterobiasis, it may be of real value in patients intolerant of or refractory to gentian violet or other drugs. In the case of children it is of value because of the ease with which it can be administered. Of 73 children 40 gave positive NIH swabs after one course of treatment, and of 13 who received a second course 10 gave positive post-treatment swabs. Of five adults three gave negative swabs after one course and two became negative after being treated twice. No untoward reactions were reported.

R.T.L.

70—Canadian Journal of Research. Section D, Zoological Sciences.

- a. HARPUR, R. P., SWALES, W. E. & DENSTEDT, O. F., 1950.—“The fate of phenothiazine in the gastrointestinal tract of the sheep.” 28 (3), 143-161.
b. HARPUR, R. P., DENSTEDT, O. F. & SWALES, W. E., 1950.—“Absorption of phenothiazine from the rumen of sheep, and its estimation in blood serum.” 28 (3), 162-172.
c. BASIR, M. A., 1950.—“The morphology and development of the sheep nematode, *Strongyloides papillosus* (Wedl, 1856).” 28 (3), 173-196.

(70a) After giving data on methods for estimating phenothiazine and phenothiazine derivatives in biological materials, Harpur *et al.* describe experiments carried out to determine the fate of phenothiazine in the alimentary canal of sheep. The post-mortem examination of the gastro-intestinal tract of a sheep dosed with phenothiazine did not show the presence of phenothiazine proximal to the bile duct, and it is suggested that phenothiazine is absorbed from the rumen as such and not as phenothiazone. 40% of the phenothiazine administered orally was excreted in the urine and in part as unaltered phenothiazine.

J.W.G.L.

(70b) Methods are described of distinguishing and estimating phenothiazine, phenothiazone and diphenylamine *o*-sulphoxide in blood serum. In two lambs dosed with phenothiazine, subsequent examination of the blood draining the rumen showed a far larger content of phenothiazine than was found in the blood draining the abomasum, or in that from the carotid or jugular. Leucophenothiazone however did not vary in its distribution.

J.W.G.L.

(70c) Basir gives the first illustrated detailed account of the morphology and development of *Strongyloides papillosus* in sheep. No differences could be detected between the newly hatched larvae which developed into free-living adults and those which directly formed infective larvae. As the first moult was approached, however, the genital primordium in those destined to become infective larvae remained unchanged, whereas in those destined to become free-living adults the genital primordium divided into a number of cells and increased in length. After the first moult the larvae of the indirect generation are thicker and more robust than those of the direct generation and the sexes can to some extent be differentiated, although the spicules are not yet apparent. After the second moult the buccal cavity of the indirect generation larvae becomes funnel-shaped, the females are recognizable from a pad-like thickening which distinguishes the vulval slit, and traces of spicule formation are observable in the males. After the third moult all adult characters gradually develop but the uterus has not yet developed a lumen. Within a few hours after the fourth moult the uterus develops a lumen and eggs are seen. The adult males possess four pairs of papillae, two pre-anal and two post-anal. In the parasitic larvae, the third moult occurs in the lungs and the fourth in the intestine of the host, thus following the general rule. No males were found in the parasitic generation and parasitic females occurred only in the intestine in experimentally infected rabbits.

R.T.L.

71—Ceylon Journal of Science. Section B. Zoology.

- a. CARTER, H. F., 1950.—“The genus *Taeniorhynchus* Lynch Arribalzaga (Diptera, Culicidae) with special reference to the bionomics and relation to disease of the species occurring in Ceylon.” 24 (1), 1-26.

(71a) Carter gives a detailed account of the characters, bionomics and relation to disease of culicine mosquitoes of the genus *Taeniorhynchus* (= *Mansonia*), the oriental subgenera *Coquillettidia* and *Mansonioides*, and of the Ceylon species *T. (Mansonioides) annuliferus*, *T. (M.) uniformis* and *T. (M.) indianus*. The discussions relating to genus and subgenera are of a general nature and include the results of research done in various parts of the world, while those relating to the species refer essentially to Ceylon. Carter deals at length with the more important findings (1933-1942) on the bionomics, relation to disease and geographical distribution of the Ceylon species which are the vectors of rural filariasis due to *Wuchereria malayi*. H.C.

72—Chronicle of the World Health Organization.

- a. ANON., 1950.—“Filariasis in Ceylon.” 4 (6), 192.
b. ANON., 1950.—“Bilharziasis.” 4 (7/8), 221.
c. ANON., 1950.—“Hydatidosis.” 4 (7/8), 221.

(72b) The Joint OIHP/WHO Study Group on Bilharziasis in Africa has reported to the Third World Health Assembly. Emphasis is given to the importance of not planning any irrigation schemes in schistosome-infected regions without keeping in mind the danger that such schemes might contribute to the spread of the infection. Effective measures of protection should be taken in all such cases. R.T.L.

(72c) The Uruguayan delegation has drawn the attention of the Third World Health Assembly to the problem of hydatidosis as a cause of considerable economic losses in food-producing animals, as well as being a serious disease in man. Its eradication is feasible in most areas through co-ordinated efforts to prevent its transmission from dogs to man. The Assembly requested the Director-General to lend technical assistance wherever possible for eradication or research at the request of government authorities. R.T.L.

73—Comptes Rendus des Séances de l'Académie des Sciences. Paris.

- a. BUTTNER, A., 1950.—“Curieux cas d'hermaphroditisme chez une souche africaine de *Schistosoma mansoni* (Plathelminthe, Trématode).” 230 (15), 1420-1422.

(73a) Buttner describes the occurrence of hermaphroditism as observed in an African strain of *Schistosoma mansoni*, and notes that this sexual abnormality has hitherto not been observed in the species *S. haematobium*, *S. japonicum* and in South American strains of *S. mansoni*. In Buttner's material the presence of the ovary in the hermaphrodite is almost always associated with a reduction in the number of testes. The ovary appears to develop from a testis in situ or from migratory testicular cells. The development of the ovary inhibits the activity of the male genitalia and renders the male incapable of fertilizing the female. This inhibition of the male organs is only partial, for even without fertilization the female in the gynaecophoric canal of the hermaphrodite develops normally. This suggests the presence of substances of male origin. Sex determination depends probably on the hereditary potentiality of the parasite and the metabolism of the host. P.L.ler.

74—Cornell Veterinarian.

- a. BAKER, D. W., 1950.—“Lancet fluke (*Dicrocoelium dendriticum*) infection in sheep in New York State.” 40 (1), 97-100.
b. WHITLOCK, J. H. & SAUNDERS, L. Z., 1950.—“Malnutrition and parasitosis in a sow.” 40 (2), 174-177.
c. BLAISDELL, K. F., 1950.—“*Arion circumscriptus*, a new intermediate host of the cat lungworm, *Aelurostrongylus abstrusus*.” 40 (2), 197-200.

- d. MAPES, C. R. & BAKER, D. W., 1950.—“The white-tailed deer, a new host of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae).” 40 (2), 211-212.

(74a) Baker gives a preliminary report on the finding of *Dicrocoelium dendriticum* in sheep for the first time in New York State. Burdens up to 50,000 flukes were found in the aged sheep, while lambs harboured about 400. J.W.G.L.

(74b) Whitlock & Saunders describe their post-mortem findings in a sow with a heavy infection of lungworms (*Choerostrongylus* sp. and *Metastrongylus* sp.), *Hyostrongylus rubidus* and *Oesophagostomum dentatum*. The diet of the sow was deficient in protein and was of such a nature as to cause a major upset in the mineral balance of the body. Since massive nodular worm infection is rare in mature swine, the diagnosis was malnutrition with secondary parasitosis. R.T.L.

(74c) Blaisdell has shown experimentally that the slug, *Arion circumscriptus*, is an intermediate host of *Aelurostrongylus abstrusus*. This nematode is definitely pathogenic, and heavy infections may cause death in cats. She lists the 17 other species of slugs and snails which have already been reported as intermediate hosts. R.T.L.

(74d) The presence of *Dicrocoelium dendriticum* in *Dama* [= *Odocoileus*] *virginianus* is reported for the first time. Three white-tailed deer from Madison County, New York, were found to be infected. It is pointed out that the deer may become an uncontrollable means of extending the range of this parasite in the U.S.A. R.T.L.

75—Deutsche Medizinische Wochenschrift.

- a. EUCKER, H., 1950.—“Zur Dosierung des Phenothiazins bei der Behandlung der Oxyuriasis.” 75 (11), 361-363.

(75a) Eucker has treated a series of 65 cases of enterobiasis in children and adults with phenothiazine (in the form of 0.2 gm. “Contaverm” tablets). He obtained the best results with a two-day treatment and with the following total dosages: up to three years, 1.0 gm. phenothiazine (1st day, 3 tablets; 2nd day, 2 tablets); age 3-8, 1.2 gm. (3 tablets each day); age 8-15, 2.1 gm. (1st day, 6 tablets; 2nd day, 4½ tablets); over 15 years of age, 4.2 gm. (1st day, 12 tablets; 2nd day, 9 tablets). These doses were well tolerated and there were no secondary effects. A comparative table showing the duration of treatment and the dosages recommended by other workers is included. A.E.F.

76—Deutsche Tierärztliche Wochenschrift.

- a. MENDHEIM, H. & SCHMIDT, J., 1950.—“Über die Rolle der Haussäugetiere als Überträger und Verbreiter menschlicher Helminthen.” 57 (3/4), 30-31.
 b. LÜHRS, 1950.—“Zum Artikel ‘Zur Gründung parasitologischer Arbeits- und Forschungsausschüsse’ von Dr. phil. E. Jacob, Nr. 45/46 der Dtsch. tierärztl. Wschr. vom 1.12.1949.” 57 (5/6), 45.
 c. BEHRENS, H., 1950.—“Behandlung der Sommerwunden der Pferde mit dem Hexachlorcyclohexanpräparat ‘Pecusanol’.” 57 (9/10), 79-80.
 d. GNÄDINGER, 1950.—“Positive Tuberkulinprobe — negativer Fleischbeschaubefund. Echinokokken.” 57 (11/12), 96.
 e. SCHAUSER, W., 1950.—“Ein Fall von Phenothiazinvergiftung bei einer Ziege.” 57 (13/14), 106-107.
 f. KORKHAUS, R., 1950.—“Zur Bekämpfung tierischer Parasiten in der tierärztlichen Praxis.” 57 (17/18), 133-136.
 g. KAISER, F., 1950.—“Zur Bekämpfung der Pferde-Strongyliden.” 57 (17/18), 136-139.
 h. JACOB, E., 1950.—“Richtigstellung zur Entgegnung von Dr. E. Lührs, Nr. 5/6 d. Dtsch. tierärztl. Wschr. v. 1.2.50 auf meinen Beitrag ‘Zur Gründung parasitologischer Arbeits- und Forschungsausschüsse’ in Heft 45/46 vom 1.12.1949.” 57 (17/18), 144.

(76a) Mendheim & Schmidt state that horses, donkeys, rabbits and hares are of very little, if any, importance as sources of helminth infections in man in present-day Central Europe. Sheep (liver-fluke), and cats and dogs (hydatid) are potentially dangerous but

transmission by these animals is rare at present. Cattle (*Cysticercus bovis*), and pigs and rats (primarily *Trichinella*) are the chief dangers to-day. A.E.F.

(76b) Lühns replies to criticisms made by Jacob concerning the efficiency of the Animal Health Laboratory Service in Germany [for abstract see Helm. Abs., 18, No. 187e]. E.M.S.

(76c) Behrens reports that he has successfully treated cutaneous habronemiasis (summer sores) in horses with the benzene hexachloride preparation "Pecusanol". After surgical treatment "Pectusanol" is applied to wounds repeatedly at intervals of 1-2 days. Usually from six to ten applications were necessary for complete healing. A.E.F.

(76d) An ox which had twice (with a 2-year interval) reacted positively to tuberculin tests was slaughtered. No sign of tuberculosis was revealed at post mortem but numerous hydatid cysts were found in both lungs. Gnädinger raises the question as to whether hydatid could give rise to positive tuberculin tests. A.E.F.

(76e) Phenothiazine (25 gm. in $\frac{1}{2}$ litre water) was administered in the evening to a goat with a heavy strongyle infection. The next morning the goat was very giddy and could hardly stand. Nevertheless a further dose of 25 gm. was given. Extreme fatigue accompanied by symptoms of paralysis and anaemia ensued and the goat died next morning. Schauer has since given two doses of 0.5 gm. per kg. body-weight to goats, with a 2-day interval, without untoward effects. A.E.F.

(76f) Korkhaus lays down general principles for the control of helminths in domestic animals. He particularly emphasizes the following points: adequate and detailed faecal examinations (to determine the nature and degree of infection); careful administration of anthelmintics; pasture and stall hygiene; and, above all, systematically planned campaigns based on the bionomics of the parasites. A.E.F.

77—East African Agricultural Journal.

- a. NATTRASS, R. M., 1950.—"The bulb eelworm disease of narcissus in Kenya." 15 (4), 196-197.

(77a) Natrass reports the first record of *Anguillulina* [*Ditylenchus*] *dipsaci* attacking narcissus in Kenya in 1949. He gives a brief résumé of the symptoms and effects of attack, and suggests that all diseased material should be destroyed. He cites onions, strawberries and *Plantago* spp. as alternate hosts of the narcissus strain. His article is based on Bulletin 51 of the Ministry of Agriculture and Fisheries, London. J.B.G.

78—Endeavour. London.

- a. LAPAGE, G., 1950.—"Parasites and war." 9 (35), 134-137.

79—Experientia. Basle.

- a. EPPRECHT, W., SCHINZ, H. R. & VOGEL, H., 1950.—"Röntgenographisch feinstrukturelle Untersuchung von parasitären Verkalkungen." 6 (5), 187-188. [English summary p. 188.]

80—Extension Bulletin. University of Hawaii, College of Agriculture.

- a. ALICATA, J. E., 1950.—"Prevention and treatment of important cattle parasites." No. 50, 23 pp.

(80a) This bulletin is primarily addressed to stock rearers in Hawaii, where the climatic conditions are ideal throughout the year for the propagation of helminths in domesticated animals. The important species in cattle are *Fasciola gigantica* (which is spread by *Fossaria ollula*), *Haemonchus contortus*, *Bunostomum phlebotomum* and *Dictyocaulus viviparus*. Succinct accounts are given of each, together with notes on prevention and treatment. R.T.L.

81—Gastroenterology.

- a. TRUBOWITZ, S. & REDISH, M. H., 1950.—“The rectal mucosal punch biopsy in the diagnosis of schistosomiasis mansoni.” 14 (3), 391-394.
- b. TRACEY, M. L., HELDEN, G. O. & BRUNS, H. J., 1950.—“Roentgenographic demonstration of *Ascaris lumbricoides* in the intestinal tract: report of case.” 14 (3), 428-431.

82—Genetics.

- a. NIGON, V. & DOUGHERTY, E. C., 1950.—“The first morphological mutant described in the Nematoda.” [Abstract of paper presented at the 1949 Meetings of the Genetics Society of America, New York City, December 28-30, 1949.] 35 (1), 127.

(82a) A morphological mutant of *Rhabditis briggsae*, the first described in a nematode [see also Helm. Abs., 18, No. 405k], shows a general reduction in size, impairment of the egg-laying mechanism and alteration in the structure of the male copulatory bursa. The ova are laid so slowly that they accumulate and kill the hermaphroditic parent. The inheritance of the micro gene follows a single factor pattern, is recessive and not sex-linked. Micro hermaphrodites have been outcrossed with wild-type males.

R.T.L.

83—Indian Journal of Helminthology.

- a. DAYAL, J., 1950.—“Trematode parasites of Indian fishes, Part III. Two new trematodes of the family Allocreadiidae from fresh-water fishes of India.” 2 (1), 1-10.
- b. MATHUR, S. P., 1950.—“On the morphology of a new species of the genus *Stomylotrema*.” 2 (1), 11-16.
- c. GUPTA, S. P., 1950.—“On a new trematode, *Allocreadium thapari* n.sp. of the sub-family Allocreadiinae Looss, 1899 from the intestine of a fresh-water fish, *Rita rita* (Ham).” 2 (1), 17-22.
- d. JOHRI, L. N., 1950.—“Report on cestodes collected in India and Burma.” 2 (1), 23-34.
- e. THAPAR, G. S., 1950.—“Two new species of the genus *Rhabdochona* Railliet, 1916 from Indian fishes.” 2 (1), 35-40.
- f. GUPTA, P. V., 1950.—“On some stages in the development of the acanthocephalan genus *Centrorhynchus*.” 2 (1), 41-48.
- g. DAS, E. N., 1950.—“On some juvenile forms of Acanthocephala of the genus *Centrorhynchus* from India.” 2 (1), 49-56.
- h. QURESHI, S. H., 1950.—“Incidence of helminthic infection in fowls in the Uttar Pradesh (U.P.).” 2 (1), 57-62.

(83a) *Eucreadium eucreadium* n.g., n.sp. obtained from the fresh-water fish *Eutropiichthys vacha*, and *Neopodocotyle indica* n.g., n.sp. from *Callichrous bimaculatus* are new genera of Allocreadiinae. *Eucreadium* is differentiated from several related genera of Allocreadiinae by the absence of filamentous eggs, from others by the position and structure of the cirrus, the position of the genital pore and the presence of a pointed protuberance at the anopercular end of the eggs. *Neopodocotyle* is closely related to *Podocotyle* from which it differs in the anterior position of the ventral sucker and the extension of the uterus behind the ovary. [Descriptions of each of these genera have been published previously in *Proc. 31st Indian Sci. Cong.* For abstracts see Helm. Abs., 13, Nos. 440a & 440b.]

R.T.L.

(83b) *Stomylotrema grebei* n.sp. is described from a *Podiceps ruficollis* shot near Lucknow. It is most nearly related to *S. travassosi* and *S. pictum*.

R.T.L.

(83c) *Allocreadium thapari* n.sp., from a *Rita rita* obtained from the river Gomti, is distinguished by the relative size of all the organs and by the eggs from other species of *Allocreadium*.

R.T.L.

(83d) The seven tapeworms obtained from reptiles and domesticated animals in Burma and India are well known forms but show some interesting and important variations from previous descriptions. *Oochoristica amphisbeteta junkea* n.subsp. from *Gekko gekko* is differentiated from *O. amphisbeteta* from the mongoose.

R.T.L.

(83e) *Rhabdochona kashmirensis* n.sp. from *Schizothorax niger* is distinguished by the presence of polar filaments on the eggs and by the peculiar bifurcations at the tips of both spicules. *R. hospeti* n.sp. from *Barbus tor* is differentiated by the length of the oesophagus, position of the vulva and backward direction of the vagina. The male is still unknown. R.T.L.

(83f) The pre-infective, infective and juvenile stages of an acanthocephalan, *Centrorhynchus ptyasus* n.sp., are described from material collected from the mesentery of the rat snake *Ptyas mucosus*. In number and arrangement of the hooks the new species comes nearest to *C. simplex* and *C. giganteus*, but the hooks are only half the size of those of the former and their shape and size differ remarkably from those of the latter species. R.T.L.

(83g) *Centrorhynchus crocidurus* n.sp. from *Crocidura caerulea*, *Centrorhynchus amphibius* n.sp. from *Ptyas mucosus* and *Rana tigrina*, *C. longicephalus* n.sp. from *Lycodon* sp., and *C. microcervicanthus* n.sp. from *Naia tripudians* [= *Naja naja*] are all described from encysted juvenile stages. R.T.L.

(83h) Qureshi has made a survey of the incidence of nematode and cestode infections in poultry on farms in the United Provinces, India, during the past six years: 324 adult fowls and 259 chickens were examined. His findings are expressed in percentages of infection with the various genera, and are set out in two tables. R.T.L.

84—Indian Journal of Medical Research.

- a. MUKERJI, A. K. & MATHEN, K. K., 1950.—"Survey of hookworm infection in the Jharia Coalfields Settlement area." 38 (1), 95-118.

(84a) Between September 1947 and March 1948, faecal samples were obtained from 3,416 colliery workers in the Jharia Mining Settlement and from 1,875 non-colliery workers, 963 of whom lived in colliery quarters. The sample represents 15 collieries and 17 adjoining villages. Hookworm infection was found in 55% of underground workers, in 49% of surface workers, and in 11% of clerical workers at the colliery, and in 29% of the non-colliery group. The over-all infection rates of the residents of colliery quarters, and of villages up to and beyond three miles from the collieries, were 45%, 33% and 20% respectively. Among people using latrines the incidence was 6.8% as compared with 42.8% of those with no sanitary provision. Of those wearing footwear 27% were infected while those going barefoot showed 43% infected. An analysis of age incidence showed two maxima, one between 16 and 20 years and the other after 50 years. The infection rate was higher in those who had been resident and working in the colliery area less than six months. The degree of infection was generally low, 61% of cases showing less than 500 eggs per gramme of faeces, and only 5.7% showing more than 2,000 e.p.g. Other helminth infections noted during the survey were *Ascaris* 514, *Trichuris* 9, *Trichostrongylus* 1, *Taenia* 117, and *Hymenolepis nana* 80. E.M.S.

85—Indian Medical Gazette.

- a. RAY, H. N., 1950.—"Echinococcal cyst of broad ligament." 85 (3), 88-90.
- b. DAVE, C. J., 1950.—"Generalized cysticercosis cellulosa." 85 (3), 92-94.
- c. SENGUPTA, A. & MITRA, S., 1950.—"An observation on preserved ova of *Ascaris lumbricoides*." 85 (4), 138.
- d. BHATTACHARJEA, S. K., 1950.—"An unusual case of elephantiasis buttocks." 85 (4), 158.
- e. PARANDE, A. S., 1950.—"A case of intestinal infestation with *Hymenolepis diminuta* in man." 85 (6), 256.

(85b) Most of the cases of cysticercosis cellulosa in man hitherto recorded in India occurred in Madras, South India, the Punjab and the United Provinces. Cases are rare in Bombay. One unpublished case seen by Gharpure in 1947 is now mentioned. A detailed

account is given of the post-mortem findings in a Hindu who died within 30 hours of admission to hospital in Bombay. Numerous cysts were present in the subcutaneous tissues of the thoracic and abdominal walls, in the diaphragm and in the brain. Two cysts were found in the heart and several in the lungs. No adult worm was found in the intestine. Dave believes that the possibility of non-pork eaters acquiring this condition through contamination of food and water by those harbouring the worm, or by the agency of flies, cannot be ruled out.

R.T.L.

(85c) *Ascaris lumbricoides* eggs preserved in 5% formalin contained viable and active larvae for over three weeks, but the larvae died almost immediately on escaping into the medium even after the formalin had been replaced by normal saline.

R.T.L.

86—Indian Veterinary Journal.

- a. LAUD, D. S., 1950.—"Food fishes of Bombay, their sources of supply, marketing and their mode of inspection as to wholesomeness etc." 26 (6), 520-537.
- b. KUNWAR, R. N., 1950.—"Nasal schistosomiasis—Treatment with tartar emetic." [Correspondence.] 27 (1), 63-64.
- c. GANGULEE, P. C., 1950.—"Canine microfilariasis." [Correspondence.] 27 (1), 64.

(86a) From the point of view of inspection of fish for human consumption, the plerocercoid of *Diphylllobothrium latum* is the only parasitic infection referred to as potentially harmful to man in this account of the food fishes of Bombay.

R.T.L.

(86b) Kunwar, in the United Provinces, has treated with tartar emetic 500 cattle diagnosed as suffering from nasal granuloma. Six injections were given at 4-day intervals, the first of 10 c.c. of a 4% solution of tartar emetic, each subsequent dose being increased by 5 c.c. to a final dose of 30 c.c. These six injections were each preceded and followed by 10 c.c. of normal saline.

R.T.L.

87—Journal of the American Veterinary Medical Association.

- a. MAPES, C. R. & BAKER, D. W., 1950.—"Studies on the protostrongyle lungworms of sheep." 116 (879), 433-435.
- b. BRACKEN, F. K. & OLSEN, O. W., 1950.—"Coenurosis in the chinchilla." 116 (879), 440-442.

(87a) *Muellerius minutissimus* [= *M. capillaris*] is found in nearly all lambs over six months old slaughtered in eastern United States. *Protostrongylus rufescens* has only been reported once from North America: it occurred in a flock of domestic sheep at Ithaca, New York. The larvae of *M. minutissimus* were found in 31% of 103 specimens of the slug *Deroceras reticulatum* from infected pastures at Ithaca. The average number of larvae in an individual slug was five but occasionally 20-30 were present. Both the adult forms in sheep and the larvae in the intermediate host were able to overwinter. *Zonitoides arboreus* is recorded as a new intermediary.

R.T.L.

(87b) Coenuriasis due to *Coenurus serialis* in the chinchilla is reported for the first time. The standard treatment is the surgical removal of the entire cyst, but in one case success followed the aspiration of fluid followed by the injection of 0.5 c.c. of 1:1,000 solution of stainless merthiolate into the cyst through the same needle. No trace of the cyst could be found one week later.

R.T.L.

88—Journal of the Faculty of Agriculture, Kyūshū University.

- a. YOSHII, H. & YAMAMOTO, S., 1950.—"A rice nematode disease, 'Senchū Shingare Byō'. I. Symptom and pathogenic nematode." 9 (3), 209-222.
- b. YOSHII, H. & YAMAMOTO, S., 1950.—"A rice nematode disease, 'Senchū Shingare Byō'. II. Hibernation of *Aphelenchoides oryzae*." 9 (3), 223-233.

(88a) Yoshii & Yamamoto review the history and distribution in Japan of this nematode disease of rice. They fully describe the symptoms: the leaves are shortened

and the top 2-5 cm. becomes pale yellow to white: the ears are seldom distorted but the grain is poor, and the yield is reduced by 10-30%. The pathogenic nematode, *Aphelenchoides oryzae* Yokoo, is described and compared with a nematode parasite of rice from Hokkaido and one from Italian millet affected with "ear blight". Infection tests were carried out and showed that the same nematode is involved in all three cases. M.T.F.

(88b) Yoshii & Yamamoto find that *Aphelenchoides oryzae* in rice occurs ectoparasitically within the young folded leaves before ear formation. At earing the nematodes enter the spikelets and are found on the exterior of the glumes and later within the paleae. At harvest they are mostly coiled up on the inside of the mature glumes. Rice straw was examined after thrashing, but very few worms were found except on the empty spikelets. Living nematodes were found on unhulled grain which had been stored for three years, but observations in the field showed that *A. oryzae* is unlikely to survive over winter out of doors in unhulled grain. It is shown that *Setaria viridis* (foxtail) may be infested by *A. oryzae* but not so heavily as rice. *Panicum sanguinale* (crab grass) and *Cyperus iria* may be slightly infested but not *Panicum crus-galli*. M.T.F.

89—Journal of Helminthology.

- a. WILLMOTT, S., 1950.—"Gametogenesis, and early development in *Gigantocotyle bathycotyle* (Fischöeder, 1901) Näsmark, 1937." 24 (1/2), 1-14.
- b. HUNTER, G. C. & KILLE, R. A., 1950.—"Some observations on *Dictyocotyle coeliaca* Nybelin, 1941 (Monogenea)." 24 (1/2), 15-22.
- c. LEROUX, P. L., 1950.—"*Trichostrongylus leiperi* sp.nov., a parasite of the eland (*Taurotragus oryx*) in Northern Rhodesia." 24 (1/2), 23-27.
- d. LEROUX, P. L., 1950.—"A trichostrongylid, *Paracooperia mazabukae* sp.nov., from a wild ruminant, the oribi, in Northern Rhodesia." 24 (1/2), 28-32.
- e. MADSEN, H., 1950.—"On the systematics of *Syngamus trachea* (Montagu, 1811) Chapin, 1925." 24 (1/2), 33-46.
- f. WHITLOCK, H. V., 1950.—"A technique for counting trematode eggs in sheep faeces." 24 (1/2), 47-52.
- g. CLAPHAM, P. A., 1950.—"On treating and preventing gapeworm disease." 24 (1/2), 53-60.
- h. CLAPHAM, P. A., 1950.—"Keratitis in pheasants following treatment with phenothiazine." 24 (1/2), 61-62.
- i. KENDALL, S. B., 1950.—"Snail hosts of *Fasciola hepatica* in Britain." 24 (1/2), 63-74.
- j. FENWICK, D. W., 1950.—"Investigations on the emergence of larvae from cysts of the potato-root eelworm *Heterodera rostochiensis*. 2. The form of the hatching curve." 24 (1/2), 75-86.
- k. FENWICK, D. W., 1950.—"Investigations on the emergence of larvae from cysts of the potato-root eelworm *Heterodera rostochiensis*. 3. Larval emergence in soil under the influence of potato-root diffusate." 24 (1/2), 86-90.
- l. STANILAND, L. N., 1950.—"Notes on the use of iodine and chlorphenol against certain plant nematodes." 24 (1/2), 91-99.

(89a) Willmott describes briefly the anatomy of the genitalia of *Gigantocotyle bathycotyle*. She gives an account of the gonial divisions and gametogenesis and finds that maturation of the gametocytes is by normal meiosis. Thirty-two spermatozoa are formed from each primary spermatogonium, apparently from nuclear material only. Maturation of the egg does not take place until after penetration of the primary oocyte by a spermatozoon. The egg shell is formed in the central chamber of Mehlis' gland, and tanning takes place as the egg passes up the uterus. The first two cleavage divisions result in the formation of three cells, one small and two larger which probably correspond to the "propagatory" and "ectodermal" cells described by other workers. The chromosome number is given as $n=6$, $2n=12$. S.W.

(89b) Hunter & Kille discuss the systematic relations of the genera *Calicotyle* and *Dictyocotyle*, and argue for the retention of *Dictyocotyle*; however, they do not accept Nybelin's definition of *Calicotylinae* as this would include *Merizocotyle*, the type of *Merizocotylinae*. *D. coeliaca* was found by them in numbers in *Raja naevus* and *R. radiata* from Scottish fishing grounds. The spindle-shaped three-sided operculate eggs probably escape from the coelom of the female host by way of the oviducts and, to a less extent,

from the male host by the abdominal pores. In the immature stages of *D. coeliaca* the opisthaptor projects prominently beyond the posterior margin of the body, although the number and arrangement of the loculi are the same as in adult forms. R.T.L.

(89c) *Trichostrongylus leiperi* n.sp. from the abomasum and duodenum of the eland is closely related to *T. vitrinus*. The shape of its slightly subequal and slightly dissimilar spicules serves to differentiate it readily from *T. vitrinus* and fourteen species parasitizing mammals. leRoux contests the statements of certain workers that the spicules are equal and similar in specimens of some members of the genus *Trichostrongylus* Looss, 1905. *Trichostrongylus longispicularis* Gordon, 1933 is treated as a synonym of *T. colubriformis* Giles, 1892. P.L.leR.

(89d) *Paracooperia mazabukae* n.sp. is described from the duodenum of *Ourebia ourebi*. It can be differentiated from the already described species by the build of its spicules. It is pointed out that the so-called serrations or dentations on the spicules are not true serrations but merely those parts of a wavy chitinous ridge which are seen when that ridge is viewed in one optical plane from a lateral aspect. The illustrations of the spicules of a helminth which Matoff (1938) recovered from nodules in the wall of the small intestine and caecum of buffaloes and identified as *Schwartziella nodulosa* (Schwartz, 1928) are such that they should be treated as a new species, for which the name *Paracooperia matoffi* n.sp. is proposed. P.L.leR.

(89e) Madsen considers that *Syngamus parvus*, *S. gracilis* and *S. merulae* are synonyms of *S. trachea*. He bases his opinion mainly on an examination of the dorsal ray and the spicules. Both these organs are very variable, and he finds that their characters overlap considerably in material previously believed to belong to distinct species. Two new hosts for *S. trachea* are recorded; they are *Melanocorypha calandra* and *Larus canus*. P.A.C.

(89f) Whitlock describes a new technique for making counts of trematode eggs in sheep faeces. A specially designed pipette for sampling and mixing a suspension of faeces is illustrated and described. The flotation fluid used is a solution of potassium mercuri-iodide prepared by dissolving 32 gm. of potassium iodide in 90 ml. of distilled water and adding 50 gm. of mercuric iodide, heating gently if necessary. As trematode eggs rise rapidly in this solution, all manipulations must be carried out quickly. A modified McMaster egg-count slide or a calibrated sliding top-piece apparatus is used for counting the eggs and their number per gramme of faeces. If a 4-gm. sample of faeces is taken, a factor of 50 is used for each chamber examined on the counting slide. When four chambers (2 ml. of suspension) are examined the factor is 12.5. When the sliding-top apparatus is employed the whole 2 ml. of suspension can be examined. The factor 12.5 is again used to convert eggs counted to eggs per gramme of faeces. R.T.L.

(89g) Clapham recommends barium antimonyl tartrate in the treatment of gapeworm disease in pheasants, but not in partridges which have difficulty in coughing up worms after they have loosened their hold on the trachea. The gapeworm larva can be destroyed after it hatches in the gut of the susceptible bird by feeding phenothiazine in the mash at the rate of 4%. Continued use causes some stunting of growth and development of the birds. P.A.C.

(89h) In bright sunny weather, pheasant poults showed plumage changes and developed keratitis when fed phenothiazine in the mash. The plumage took on a red colour which was plainly visible 24 hours after the first feeding. Eye changes varied in intensity from an opaque cornea to ulceration and blindness. In the early stages birds recovered when removed into a shadier environment, but the changes reappeared when they were returned to brilliant sunlight. P.A.C.

(89i) Of the six native species of *Limnaea* in Britain, *L. truncatula*, *L. palustris*, *L. glabra* and *L. stagnalis* can be infected with *Fasciola hepatica* under laboratory conditions and will produce mature cercariae. In *L. pereger* development proceeded only to the redia stage, and *L. auricularia* proved resistant to infection. With the exception of *L. truncatula* the susceptible species could only be infected during the first few days after hatching. It is concluded that in Britain *L. truncatula* is the only effective vector under field conditions. R.T.L.

(89j) Fenwick describes experiments in which samples of cysts of *Heterodera rostochiensis* were exposed to the action of potato-root diffusate with the object of determining the form assumed by the hatching curve. He found that when the hatch at the end of each time interval was expressed as a probit of the total hatch and plotted against the logarithm of that time, a close approximation to linearity resulted. The implications of this probit relationship are discussed, as well as its application to the examination of hatching data. D.W.F.

(89k) Fenwick set up an experiment to investigate the effect of root diffusates from different varieties of potatoes on natural infestations of cysts in three different soils. He found that in the absence of any active root diffusate there was a reduction of approximately 50% in cyst contents over a season; in the presence of diffusates there was a reduction of 84%. Significant differences were also detected in the degree of emergence under the action of different diffusates, as well as in the case of different soils. D.W.F.

(89l) Staniland reports that *Anguillulina* [*Ditylenchus*] *dipsaci* and *Aphelenchoides ritzema-bosi* are killed by iodine solution at 1:2,000 in two seconds, 1:4,000 in 10 seconds and 1:16,000 in 3½ minutes. "Eelworm wool" needs 8 minutes at 1:4,000. Chlorphenol (British Alkaloids Ltd.) is as efficient but slower: 0.5% takes 2 minutes, 0.25% takes 5 minutes and 0.125% takes 7 minutes to kill active eelworms. 0.5% kills eelworm wool in 15 minutes and 0.25% takes 40 minutes. With *Aphelenchoides ritzema-bosi* in dried chrysanthemum leaves, one hour's soaking in 0.25% chlorphenol kills all eelworms. Infected seed of clover, onion and teazel is successfully treated with iodine solution [1:4,000] for 10 minutes or 0.5% chlorphenol for 20 minutes. Germination is delayed slightly but the percentage germination is not reduced. Chlorphenol at 0.25% is used in the bath for hot-water treatment of bulbs, together with a "wetter". It is also used for washing down all staging, walls, floors etc. of the sheds in which treatment is carried out. Chlorphenol has very little phytocidal action. "Dichlorphenol" (40% chlorine) is about three times as efficient as chlorphenol. Some preliminary experiments on the use of chlorphenol against cysts of *Heterodera rostochiensis* are described. J.B.G.

90—Journal of Immunology.

- a. HENDRICKS, J. R., 1950.—"The relationship between precipitin titer and number of *Trichinella spiralis* in the intestinal tract of mice following test infections." 64 (3), 173-177.

(90a) There was a marked progressive decrease in the percentage of *Trichinella spiralis* recovered from the small intestine of four mice which received one to four doses of 200 larvae at 21-day intervals, and a striking progressive increase in the precipitin titre of their sera. This effect varied with the number of doses administered. R.T.L.

91—Journal of Infectious Diseases.

- a. SPRENT, J. F. A., 1950.—"On the toxic and allergic manifestations caused by the tissues and fluids of *Ascaris*. II. Effect of different chemical fractions on worm-free, infected and sensitized guinea pigs." 86 (2), 146-158.

(91a) Sprent observed an effect resembling anaphylactic shock in worm-free guinea-pigs injected with whole extract of *Ascaris*. Removal of proteins removed this toxic effect, but it was not removed by dialysis. Deproteinized extracts caused dyspnoea, which may

have been due to the products of protein hydrolysis, as it was more marked after partial digestion with pepsin or after autolysis. Protein-free material produced shock in guinea-pigs already sensitized with *Ascaris* body fluid or with extracts of various other nematodes, but not with *Macracanthorhynchus*, *Moniezia*, oligochaete or planorbid extracts. Guinea-pigs infected with *Trichinella* were successfully shocked by whole and protein-free *Ascaris* extracts. Sprent considers it possible that both protein and polysaccharide are involved in the production of shock in infected animals. Widely distributed immunologically related polysaccharides may have a role in instigating cross-sensitization in infections with various helminths.

E.M.S.

92—Journal of the Kansas Medical Society.

- a. MACKIE, T. T., 1950.—“Tropical disease infections among veterans.” 51 (2), 49-53.

(92a) The second World War did not result in the importation of new and hazardous infections into the U.S.A. or in any increased disease endemicity. A history of foreign service should have a potential significance to the general practitioner in cases of chronic ill-health with a symptom picture which does not conform to a well defined clinical entity. Of 23 cases examined for filariasis, 15 gave a positive skin test. Of 696 veterans examined for intestinal parasitism the faeces showed: hookworm 9%, *Ascaris* 1%, *Strongyloides stercoralis* 2%, *Trichuris trichiura* 4%. Three cases of *Schistosoma japonicum* and one each of *Taenia* sp., *Fasciolopsis buski*, *Hymenolepis nana* and *Trichostrongylus* sp. were noted.

R.T.L.

93—Journal of Laboratory and Clinical Medicine.

- a. BITTNER, G., 1950.—“Detection of parasites in human excretions.” 35 (1), 121-122.

(93a) When a portion of faeces about the size of half a rice grain is thoroughly mixed with one drop or less of warm 2% fluorescein aqueous solution and incubated for five to ten minutes at 37°C., ova, living cells and protozoa have a bright almost fluorescent blue colour against a lavender background when examined under a microscope which has a substage filter of clear blue glass housed in the condenser. The microscope lamp must have the ground glass filter replaced by a clear blue glass lamp filter, and a similar filter is laid on the microscope mirror.

R.T.L.

94—Journal of the Ministry of Agriculture. London.

- a. SMALL, T., DUNN, E. & THOMAS, G. E., 1950.—“Potato root eelworm in Jersey.” 57 (5), 212-215.

(94a) Reporting on *Heterodera rostochiensis* in Jersey, Small *et al.* refer to the first records (two foci) in 1938 and to the present distribution in some of the best land along the south and west coasts. The local practice of early potatoes followed by tomatoes, often year after year, has led to widespread heavy losses in tomatoes and (less often) failure of the potato crop. Legislation forbids the import of potatoes from infested land. A detailed survey begun in 1939 was stopped by the German occupation in 1940, which incidentally rested the soil since the two crops were greatly reduced. Spread of the eelworm is aided by the use and re-sale of hollow bamboo canes (as many as 15,000 are used per acre, 200 cysts having been recovered from the soil in the base of 50 canes), and by the use of composted haulms with roots, and of infested loam, in tomato nurseries. “Groundkeeper” or “volunteer” potatoes, which come up in the autumn and during a subsequent rotation, are an added problem. D-D mixture has been used at 540 lb. per acre, costing £48 per acre when applied by hand-injector; in potatoes it led to increased yields with no reduction in the eelworm population. In tomatoes the greatly increased yields were not accompanied by any build-up in the eelworm population.

B.G.P.

95—Journal of Parasitology.

- a. WRIGHT, W. H., 1950.—"Introductory remarks for symposium on the physiology of parasites, American Society of Parasitologists, New York, N.Y." 36 (3), 175-177.
- b. VON BRAND, T., 1950.—"The carbohydrate metabolism of parasites." 36 (3), 178-192.
- c. MOULDER, J. W., 1950.—"The oxygen requirements of parasites." 36 (3), 193-200.
- d. BUEDING, E., 1950.—"Effect of drugs on metabolism and enzyme systems of parasites." 36 (3), 201-210.
- e. GEIMAN, Q. M. & MCKEE, R. W., 1950.—"Symposium—Physiology of parasites—American Society of Parasitologists, December 28, 1949. Protein metabolism of parasites." 36 (3), 211-226.
- f. BURROWS, R. B., 1950.—"On the estimation of *Trichuris* worm burdens in patients." 36 (3), 227-231.
- g. HITCHCOCK, D. J., 1950.—"Parasitological study on the Eskimos in the Bethel area of Alaska." 36 (3), 232-234.
- h. SCHILLER, E. L., 1950.—"*Hymenolepis rauschi*, n.sp., a cestode from the ruddy duck." 36 (3), 274-277.
- i. VAN CLEAVE, H. J. & RAUSCH, R. L., 1950.—"A new species of the acanthocephalan genus *Arhythmorhynchus* from sandpipers of Alaska." 36 (3), 278-283.

(95a) Wright gives a brief historical account of research on the physiology of parasites, and emphasizes that more knowledge of this subject is required as a basis for studies on the chemotherapy, immunology and pathology of diseases caused by parasites. W.P.R.

(95b) Von Brand discusses the sources of carbohydrate, quantitative aspects of carbohydrate metabolism, the end-products of aerobic and anaerobic fermentations, and intermediate carbohydrate metabolism in animal parasitism. Most parasites have an endogenous source of carbohydrate, usually glycogen, which they can draw on when no exogenous carbohydrate is available. Glycogen consumption varies greatly in different helminths, but is often little affected by the presence or absence of oxygen. Apart from carbon dioxide, lactate seems to be the most important end-product of carbohydrate metabolism in schistosomes and filariid worms. Other nematode parasites produce lower fatty acids; *Fasciola* and *Moniezia* produce higher fatty acids. Little is known of the intermediary metabolism of helminth parasites, but there is some evidence to show that glucose may be broken down via the Embden-Meyerhof route and the tricarboxylic acid cycle in some species. W.P.R.

(95c) Moulder discusses the oxygen requirements and the nature of oxygen- and electron-transferring mechanisms in parasites. The response of helminth parasites to oxygen is variable; some are obligate aerobes and many are facultative anaerobes. Apart from the evidence obtained by the use of inhibitors, little is known of the oxidative mechanisms; cytochromes and dehydrogenases have been found in some forms. Moulder concludes with a brief discussion on parasitic adaptation and enzyme loss. W.P.R.

(95d) Bueding discusses the action of cyanine dyes, which inhibit oxidative mechanisms in *Litomosoides carinii*, and of naphthoquinones, which inhibit glycolysis in *Schistosoma mansoni*, in relation to anthelmintic activity. The actions of hetrazan and hexylresorcinol are mentioned. Bueding concludes that more knowledge of the anabolic mechanisms and nutritional requirements of parasites is needed to assist the search for specific anthelmintics. W.P.R.

(95e) Geiman & McKee discuss protein digestion and the end-products of protein metabolism in helminths, and the mechanism by which helminths resist digestion by the host. The information available is limited and the review is necessarily restricted to a few species of helminths. W.P.R.

(95f) 4,582 *Trichuris trichiura* were recovered from nine patients after treatment with enteric-sealed tablets of emetine hydrochloride. Individual infections ranged from 14 to 2,544. The relation of size of female worms to the number of eggs per gramme of faeces is tabulated. The average number of eggs per female was about 215. There was a positive correlation between the size of the female worms and the number of eggs per

gramme per female, and a negative correlation between the intensity of infection and the number of eggs per gramme per female. Owing to such factors as differences in the age of the infection, the intensity of infection, the size of the worms and the size of the normal stool, any estimation of the number of worms present in a patient would probably be incorrect.

R.T.L.

(95g) Examination by faecal samples, peri-anal swabs and trichina skin tests of 100 Alaskan Eskimos gave evidence of helminth infection by *Diphyllbothrium* sp. in 15%, and by *Enterobius vermicularis* in 58%. Ascarid larvae occurred in 10%, but no *Ascaris lumbricoides* eggs or adults were found and it is possible that these were Anisakinae larvae ingested with the flesh of fish. One specimen was definitely a *Porrocaecum* and another an *Anisakis*. Trichina skin tests on 150 persons revealed 6.6% reactors.

R.T.L.

(95h) *Hymenolepis rauschi* n.sp. is described and figured from *Oxyura jamaicensis rubida* taken at Buckeye Lake, Ohio. Specimens of *Diorchis excentricus* occurred in the same duck. *H. rauschi* is differentiated from other *Hymenolepis* by the presence of eight rostellar hooks, armed suckers and a cirrus provided with a stylet. The presence of armed suckers and eight rostellar hooks supports the view that *Echinocotyle* has no valid status as a genus or subgenus.

R.T.L.

(95i) *Arhythmorhynchus comptus* n.sp. is described from the Aleutian sandpiper, *Erolia ptilocnemis couesi*, and from *E. alpina pacifica* of Alaska. *Polymorphus eroliae* is assigned to *Arhythmorhynchus* and *A. comptus* is differentiated from it on the basis of size of proboscis and number of proboscis hooks of which there are 8 or 9 hooks in each of 15 or 16 longitudinal rows. The proboscis is short and spindle-shaped, measuring 0.32-0.44 mm. in the male.

R.T.L.

96—Journal of Tropical Medicine and Hygiene.

- a. SCHMIDT, H., 1950.—“An advance in the therapeutics of pentavalent antimony: solustibosan (sodium antimony gluconate).” 53 (5), 95-103.

(96a) Schmidt, in an account of the chemistry and pharmacology of solustibosan (sodium antimony^v gluconate) and its clinical effects in kala-azar and cutaneous leishmaniasis, expresses the opinion that trials with solustibosan solution or oleosum in the intensive treatment of filariasis would be interesting.

R.T.L.

97—Journal of Urology.

- a. SAYEGH, E. S., 1950.—“Late complications of urinary bilharziasis.” 63 (2), 353-371.

98—Journal of the Washington Academy of Sciences.

- a. TARJAN, A. C., 1950.—“A consideration of mineral nutrition of boxwood in relation to infection by meadow nematodes, *Pratylenchus* spp.” 40 (5), 157-161.

(98a) Tarjan presents the results of analyses carried out on boxwood bushes (*Buxus sempervirens* var. *suffruticosa*), both healthy and infected with meadow nematodes, *Pratylenchus* spp., to determine the chief mineral constituents. He shows that roots of infected plants had higher levels of sodium and nitrogen, whereas roots of healthy plants were higher in potassium. Leaves of infected plants contained higher quantities of phosphorus and leaves of healthy plants were higher in potassium.

T.G.

99—Klinische Wochenschrift.

- a. SCHNEIDER, H.-H., 1950.—“Hexachlorcyclohexan (HCC) als Oxyurenmittel.” 28 (5/6), 104.
b. LANG, K., SIEBERT, G. & LÖNNECKE, W., 1950.—“Über biochemische Wirkungen von Miracil D.” 28 (5/6), 104-105.

(99a) As benzene hexachloride has shown some promise against enterobiasis and is now available as an anthelmintic, Schneider carried out extensive *in vitro* and toxicity

tests on the technical mixture of isomers and on the gamma fraction. The effective concentration against earthworms and enchytraeids was 5 mg.%, and against leech muscle preparations with and without the chain of ganglia was 1 mg.% and 4 mg.% respectively. Swine ascaris survived 50 mg.% for as long as 48 hours. The gamma fraction was no more effective than the technical mixture in any of these tests, and proved 5-10 times more toxic to rats, the lethal dose being 100-200 mg. per kg. body-weight, as compared with 1,500 mg. per kg. for the technical mixture. Oils such as cod liver oil or mineral oil increased the toxicity, but castor oil did not. The drug proved much more highly toxic by intra-peritoneal injection. Toxic action was generally manifest very slowly, and daily dosing produced a cumulative effect. Schneider considers that the drug is worth a trial against *Enterobius*, but not against *Ascaris*. He considers a "shock" treatment of two days' duration likely to prove safer than a prolonged course of smaller doses. E.M.S.

(99b) Miracil-D inhibits cell division in the reproductive organs of bilharzia worms, and has been found experimentally to prevent mitosis in certain other plant and animal tissues. Lang *et al.* have examined the biochemical properties of miracil-D, and consider that the mechanism of this action can be explained by its property of lowering the combining power of thymonucleic acid with proteins. E.M.S.

100—Kongelige Norske Videnskabers Selskabs Forhandling.

- a. ALLGÉN, C. A., 1950.—"Zur Kenntnis norwegischer Nematoden XXI. Über einige freilebende marine Nematoden aus der Strandzone von Steinkjer." Year 1949, 22 (16), 62-65.
- b. ALLGÉN, C. A., 1950.—"Zur Kenntnis norwegischer Nematoden XXII. Weitere freilebende marine Nematoden aus der Strandzone von Steinkjer." Year 1949, 22 (17), 66-69.

(100a) Allgén lists eight species of marine nematodes found in samples of mud collected from the beach of Steinkjer. T.G.

(100b) In a further note on marine nematodes found in samples of mud from the tidal zone of Steinkjer, Allgén lists seven species one of which, *Paralinhomoeus donsi* n.sp., is described and illustrated as new to science. T.G.

101—Lancet.

- a. GRAHAM, J. G. & ORR, J. L., 1950.—"Hepatic abscess associated with visceral schistosomiasis." Year 1950, 1 (6607), 714-716.
- b. MAINZER, F., 1950.—"Pulmonary biharziasis and Loeffler's syndrome." [Correspondence.] Year 1950, 1 (6607), 735-736.
- c. COLBOURNE, M. J., 1950.—"Unsuccessful treatment of ascariasis with hetrazan." Year 1950, 1 (6613), 996.
- d. ALVES, W., 1950.—"Oral treatment of urinary bilharziasis." [Correspondence.] Year 1950, 1 (6616), 1134.

(101c) When given orally to 24 ascariasis patients at the dosage of 2 mg. per kg. body-weight at 8-hourly intervals for 24 hours recommended by Oliver-Gonzalez *et al.* [for abstract see Helm. Abs., 18, No. 42a], hetrazan proved less effective than oil of chenopodium, which was given to a similar group of 24 patients. *Ascaris* were seen after hetrazan treatment in the stools of only seven of the treated persons; eggs disappeared from the stools of eleven patients, the egg-count was reduced by over 50% in seven, and the remaining six showed reductions of less than 50%. E.M.S.

(101d) Miracil-D and plain uncoated Nilodin are as effective as any known drug in the treatment of urinary bilharziasis, but miracil-A (Elberfeld) is much less effective. Sugar-enteric-coated Nilodin tablets are poorly absorbed from the gut of Africans, and this was responsible for the poor therapeutic results obtained in a series of 68 cases treated. R.T.L.

102—Landwirtschaftliches Wochenblatt für Westfalen und Lippe.

- *a. GOFFART, 1950.—"Ueber die Hafernematoden und ihre Bekämpfung." 107, 366.

103—Lebensmitteltierarzt. (Supplement to Deutsche Tierärztliche Wochenschrift).

- a. STEINBRÜCK, H., 1950.—“Zur Trichinenschau.” 1 (5), 67–70.
- b. SCHÖNBERG, F., 1950.—“Über die Notwendigkeit der sorgfältigen Trichinenuntersuchung bei Hausschweinen und sonstigen Trichinenträgern.” 1 (5), 70–71.

(103a) Steinbrück comments on German trichinella inspection regulations and stresses the importance of strict adherence to the law: he gives examples of the dangers of neglect of duty culled from over forty years' experience. A.E.F.

(103b) Schönberg records two recent outbreaks of trichinelliasis in Germany. The first, at Düren, led to three deaths and was caused by eating the flesh of a pig killed secretly and not subject to inspection. The second, at Mengerskirchen, Wiesbaden, caused by eating the flesh of a wild sow not subjected to inspection, resulted in light infections of 12 members of a family. They were treated with foudadin, and all recovered. A.E.F.

104—Medicina Colonial. Madrid.

- a. BENÍTEZ CALVO, L. A., 1950.—“Notas sobre el tratamiento médico de la filariasis.” 15 (1), 33–39.

(104a) Benítez Calvo used neostibosan in treating eight cases of filariasis, principally due to *Loa loa*, in white persons returned from Spanish Guinea. Dosage was according to weight, beginning with 0.05 gm. and not exceeding 0.3 gm. for the average adult, given in two or three courses of eight injections each, with two weeks' rest between courses. Clinical improvement resulted, with disappearance of Calabar swellings, and was maintained during six months of observation. E.M.S.

105—Medicina. Revista Mexicana.

- a. NETTEL F., R., 1950.—“Importancia de la investigación de microfilarias de *Onchocerca volvulus*, en el líquido intersticial de la dermis de la piel.” 30 (596), 21–25. [English summary pp. 24–25.]
- b. SANTOS ZETINA, F., 1950.—“Parasitación por helmintos intestinales en habitantes de Mérida Yucatán.” 30 (596), 36–37.

(105a) Nettel F. describes and recommends a method of diagnosing onchocerciasis by deep scarification of the skin under pressure of an artery forceps, and microscopic examination of the exuded lymph. It is claimed that the method is easy and not unpleasant to the patient, and that the microfilariae are not damaged but can be examined for structural details or for changes due to drug action etc. E.M.S.

(105b) Santos Zetina gives the results of examination of 1,144 faecal samples from inhabitants of the city of Merida, Yucatan. The samples were examined both by direct smear and after acid-ether concentration and centrifugation. Helminths were diagnosed in 68.1% as follows: *Trichuris* in 54.4%, *Ascaris* in 38.1%, *Hymenolepis nana* in 1.3%, *Enterobius* in 1.2%, hookworms in 0.5%, *Strongyloides* in 0.4% and *Taenia* spp. in 0.2%. The low incidence of hookworms noted is in line with similar findings in other parts of the Yucatan Peninsula. It is suggested that the limy soil poor in humus or the wide daily variations in temperature may be contributory factors in controlling these parasites. E.M.S.

106—Medizinische Klinik.

- a. MOORMANN, H., 1950.—“Die Leberegelkrankheit (Fasciolosis) beim Menschen. Eine klinische Betrachtung mit kasuistischem Beitrag (Beobachtung einer Fasciolosis bei einem Kinde).” 45 (1), 4–8.
- b. BREUER, H., 1950.—“Über einen Fall schwerer toxischer Gesamtschädigung durch Ascariden nebst Vorschlägen zur allgemeinen Bekämpfung der Wurmlage.” 45 (6), 173–174.

107—Mikrokosmos.

- a. SACHS, H., 1950.—"Seltsame Nematoden." 39 (4), 73-77.
 b. KAUDEWITZ, H., 1950.—"Mikroskopische Stuhluntersuchung." 39 (6), 131-134.

(107a) Sachs gives an illustrated account of some of the free-living nematodes belonging to the genus *Bunonema*, in which the body cuticle in the lateral regions is provided with variously shaped warts and bosses and the head with asymmetrical lips and papillae. He mentions their principal habitats, and gives methods for their collection. An alcohol-glycerin or a formol fixative are recommended for their preparation. T.G.

(107b) Kaudewitz briefly describes the techniques for the examination of human faeces. He gives an account (with illustrations) of the vegetable artefacts, protozoa, helminths and helminth eggs most likely to be encountered. A.E.F.

108—Nachrichtenblatt des Deutschen Pflanzenschutzdienstes.

- a. GOFFART, 1950.—"Der Kartoffelnematode in Holland." 2 (3), 45.
 b. GOFFART, H., 1950.—"Beobachtungen über einige Krankheiten und Schädlinge der Zuckerrübe in der Türkei." 2 (4), 60-61.

(108a) Goffart records the discovery of potato-root eelworm in Holland in 1941, its presence in over 1% of 2,000 allotments in 1947, the danger of its spread to those areas where potatoes are grown annually, and the fact of its doing more damage to early than to late varieties. Very briefly he summarizes the Dutch law of 1949 [see Helm. Abs., 18, No. 504b] restricting potatoes to one year in three and forbidding them altogether on infested land. B.G.P.

(108b) During a visit to Turkey in the summer of 1949, Goffart was able to make observations on the pests and diseases of sugar-beet grown there. The only nematode infesting the crop was the root-knot nematode, *Heterodera marioni*. Up to now infested plants have been burnt on the spot after treatment with Diesel fuel and creosote. So far, the sugar-beet eelworm *H. schachtii* has not been observed in Turkey. T.G.

109—National Wool Grower.

- *a. MARSH, H., 1950.—"Parasites of sheep in Australia." 40, 28-29. [January.]

110—Nature. London.

- a. MASSEY, V. & ROGERS, W. P., 1950.—"Fluoroacetate and the tricarboxylic acid cycle in nematode parasites." [Correspondence.] 165 (4200), 681-682.
 b. FENWICK, D. W., 1950.—"'Buried bag' technique for testing 'D-D' as a soil fumigant against the potato-root eelworm." [Correspondence.] 165 (4200), 694.
 c. DESOWITZ, R. S., 1950.—"Protozoan hyperparasitism of *Heterakis gallinae*." [Correspondence.] 165 (4208), 1023-1024.

(110a) Massey & Rogers found that 0.01 M fluoroacetate strongly inhibited the respiration of brei prepared from *Nematodirus* spp. and *Ascaridia galli*; this inhibition was decreased or abolished by the addition of α -ketoglutarate, succinate, fumarate, malate and oxalacetate. Acetate was utilized by the parasites by means of the tricarboxylic acid cycle. Acetate or its products condensed with oxalacetate to form citrate, and the citrate was metabolized by way of the tricarboxylic acid cycle. The addition of fluoroacetate caused increased yields of citrate in this condensation. This has been shown to be due to the inhibition of aerobic citrate utilization by fluoroacetate in the parasite. Under anaerobic conditions fluoroacetate had no effect on citrate utilization. In parallel experiments carried out with pigeon breast muscle and pigeon liver, fluoroacetate was a poor inhibitor. W.P.R.

(110b) Fenwick records an apparent failure of the "buried bag" technique when applied to a pot experiment on the nematocidal effect of the soil fumigant D-D against *Heterodera rostochiensis*. He found that kills for cysts enclosed in cotton bags buried in fumigated soil were substantially higher than for cysts naturally present in the soil. The need is stressed for extreme caution in the interpretation of results from the "buried bag" technique.

D.W.F.

(110c) Desowitz describes and illustrates by a photomicrograph two cells, resembling sacs filled with amoebulae, which were found in the gut wall of *Heterakis gallinae*, obtained from a turkey which had died of blackhead. He considers them to suggest a schizogonic development of a new protozoan parasite of *H. gallinae*, or possibly a stage in the development of *Histomonas*.

R.T.L.

111—North American Veterinarian.

- a. BURCH, G. R. & BLAIR, H. E., 1950.—"Vermiplex, an anthelmintic for cats." 31 (5), 329-333
- b. BLAKELY, C. L., 1950.—"Treatment for trichuriasis." [Questions & Answers.] 31 (5), 334
- c. IRWIN, W. F., 1950.—"Treatment for tapeworms in dogs." [Questions & Answers.] 31 (7), 468

(111a) It is claimed that a single dose of "Vermiplex" (one or two capsules, each containing 0.1 c.c. methylbenzene and 0.1 gm. di-phenthane-70) is highly effective against ascarids, hookworms and tapeworms in cats. The toxicity is very low. The efficacy against ascarids was over 90% and against hookworm 82.3%. The dose completely eliminated tapeworms from two infected cats. "Vermiplex" had no anthelmintic effect against *Physaloptera*, which occurred in 12.5% of the cats under treatment.

R.T.L.

(111b) Blakely recommends *n*-butyl chloride at frequent intervals, with symptomatic treatment to control diarrhoea, for whipworms in dogs.

R.T.L.

112—Phytopathology.

- a. DIMOCK, A. W. & LEAR, B., 1950.—"Soil treatments with parathion for the control of root-knot nematode and golden nematode." 40 (5), 460-463.
- b. MILLER, V. L., COURTNEY, W. D. & ANDERSON, B. L., 1950.—"Stability of formaldehyde solutions used in bulb treatments." 40 (7), 627-631.
- c. COOPER, W. E., 1950.—"Root knot of peanuts." [Abstract of paper presented to the 1950 Annual Meeting of the Southern Division, American Phytopathological Society, Biloxi, Miss., February 9-11, 1950.] 40 (8), 786.

(112a) Dimock & Lear report good control of *Heterodera marioni* and *H. rostochiensis* using parathion in pot tests in glasshouses; chlordane and benzene hexachloride were not very effective at dosages phytotoxic to cucumbers sown three weeks after soil treatment. Dosages of 50 mg. of active parathion per 1-gal. pot of soil gave a high degree of control of *H. marioni*. Complete control of *H. rostochiensis*, as measured by counts of hatched larvae, was given by 1.5 gm. per pot, and partial control at dosages down to 75 mg. per pot. The parathion was used as a 15% wettable powder, thoroughly mixed with the soil. B.G.P.

(112b) Miller *et al.* present the results of tests carried out on weak formaldehyde solutions used in warm-water tanks for the treatment of eelworm-infested narcissus and iris bulbs in order to determine what change, if any, occurred in the formaldehyde concentrations during treatments. They found that in a small electrically heated tank, without bulbs, there was an 11.5% loss of formaldehyde and a 22% water loss in eight 4-hour treating periods. The same tank when loaded with narcissus bulbs maintained its original concentration through eight 4-hour treatments. In commercial steam-heated tanks the formaldehyde concentration may drop to 81-67% of the original in from four to seven 4-hour heating periods; this is owing largely, it is thought, to the dilution of the solution by the condensed steam used in heating.

T.G.

(112c) Severely stunted and dying peanut plants from five counties of North Carolina were found to have galls containing root-knot nematodes on the roots. The plants were removed from a diseased area and the rows were treated with Dowfume W-40 and Dowfume N at 2.7 and 4.7 ml. per foot. Peanut seed was sown 14 days later. No differences in stand were observed but after 10 weeks' growth the plants from the treated rows were practically free from galls and weighed 50-95% more than the controls. Cooper considers that infestation by the root-knot nematode may be a factor causing poor growth of peanuts. The nematode is apparently of a different strain from that which commonly attacks tobacco. M.T.F.

113—Plant Disease Reporter.

- a. HEGGESTAD, H. E. & CLAYTON, E. E., 1950.—"Occurrence of black shank and other diseases on burley tobacco in East Tennessee, in 1949." 34 (1), 23-24.
- b. HUBERT, F. P. & WHEELER, W. H., 1950.—"Disease survey of domestic bulbs 1948-49." 34 (2), 53-55.
- c. BOYLE, L. W., 1950.—"Several species of parasitic nematodes on peanuts in Georgia." 34 (3), 61-62.
- d. HAVIS, L., CHITWOOD, B. G., PRINCE, V. E., COBB, G. S. & TAYLOR, A. L., 1950.—"Susceptibility of some peach rootstocks to root-knot nematodes." 34 (3), 74-77.

(113a) Root-knot (*Heterodera marioni*) was more prevalent in tobacco in eastern Tennessee in 1949 than for several years before. Two plant beds had to be abandoned on account of the severity of attack but the total damage was not great. M.T.F.

(113b) In this brief account and summary of results, mention is made of *Ditylenchus* sp. from iris, and *Aphelenchoides parietinus*, *Ditylenchus dipsaci* and *Ditylenchus* sp. from narcissus. All these nematodes came from bulbs originating in Oregon or Washington State. J.B.G.

(113c) Boyle reports that the roots of badly stunted, chlorotic plants occurring in a field of Spanish peanuts were more heavily infected with nematodes than were those of healthy plants. Specimens were submitted to Steiner, who reported that they were infected by at least two species of meadow nematodes and by *Tylenchorhynchus claytoni* and a species of *Criconeimoides*. Another crop of Spanish peanuts showed dark pock marks on the shells at harvest. These pocks and the roots of the plants were found by Steiner to be heavily infected with *Pratylenchus leiocephalus*; two species of *Aphelenchoides*, one of *Dorylaimus* and *Seinura tenuicaudatus* were also present. Steiner identified *Xiphinema americanum* in peanuts from another locality. Heavy-shelled Virginia Bunch type of peanuts had less conspicuous lesions on the nuts. Nematode infection is said to limit the nut production. M.T.F.

(113d) This is a brief partial report on studies of the susceptibility of six peach rootstocks to two species of root-knot nematode, *Meloidogyne incognita* and *M. javanica*; the former is the common peach nematode, the latter is less common but has caused serious damage in several places to such resistant rootstocks as Yunnan and Shalil. The six rootstocks were: Yunnan (P.I. 55886), "nematode-resistant"; S 37 (patented in 1949 on the basis of the resistance of its seedlings to nematodes), which was selected from seedlings of *Prunus persica*; Red Shadow and Davidson, both reported as relatively resistant in the field; Lovell, the commonest rootstock and highly susceptible; and finally a hybrid, Chico No. 16 (P.I. 146135) × *Prunus davidiana* (C-26712), of which the former parent seemed fairly resistant to *M. incognita* and the latter considerably resistant to *M. javanica*. For inoculum both nematode species were propagated on tomatoes, and chopped roots and soil were used in which the number of nematode egg masses had been estimated. After six months' growth, visual estimates of the root-gall index were made on the seedlings according to the number of galls on a given weight of roots. The number of egg masses in a 2-gm. sample of roots from each plant was also determined, in order to estimate the

reproduction rate of the nematodes. Galls caused by *M. incognita* were usually larger than those due to *M. javanica*. Lovell was severely galled by both species of nematode, which also had high reproduction rates on this variety. Red Shadow and Davidson were also severely galled by both species, but while the reproduction rate of *M. incognita* was high in Red Shadow and medium in Davidson, that of *M. javanica* was nil in Red Shadow and very low in Davidson. Yunnan and the hybrid variety were slightly galled by *M. incognita* and severely galled by *M. javanica*; *M. incognita* did not reproduce on either rootstock, while *M. javanica* reproduced very well on Yunnan and at a medium rate on the hybrid. On S 37 there were few galls with either nematode, and the reproduction rate was very low (all the egg masses were found on one plant) with *M. incognita*, and nil with *M. javanica*. S 37 thus shows high resistance to both species of root-knot nematode tested, but little is known of its value as a rootstock and it may prove to be susceptible to other nematode species. The great variability in resistance shown by different plants in the hybrid stock is considered encouraging, and further work is being done to develop nematode-resistant stocks which will give good orchard trees. All the six rootstocks used were grown from seed in the greenhouse.

M.T.F.

114—Poultry Science.

- a. TODD, A. C., HANSEN, M. F., KELLEY, G. W., WYANT, Z. N. & OLSEN, L. S., 1950.—"Survival of infective tapeworm larvae following exposure of the intermediate host to DDT." 29 (1), 156-157.
- b. RIEDEL, B. B., 1950.—"The effect of ascarid infections on the susceptibility of chickens to coccidiosis." 29 (2), 201-203.
- c. TODD, A. C., HANSEN, M. F., KELLEY, G. W., WYANT, Z. N. & CULTON, T. G., 1950.—"Diet of hens and resistance of their offspring to helminthic infection." 29 (2), 264-267.

(114a) Continuing their experiments on the survival of cysticercoids of *Raillietina cesticillus* in the flour beetle, *Tribolium confusum*, after exposure of this vector to a D.D.T.-sprayed surface, Todd *et al.* now report that while at least one cysticercoid had remained viable after 48 hours' continuous exposure of its vector to 25% D.D.T., there was apparently a reduction in viability of the cysticercoids. Data are quoted which indicate that a rapid mortality begins approximately 24 hours after the death of the infected vectors.

R.T.I.

(114b) Studies on chickens, which when one week old were experimentally infected with 400 embryonated eggs of *Ascaridia galli* and four weeks later were individually infected with 35,000 sporulated cysts of *Eimeria tenella*, indicate that the nematode-infected chicks were less resistant to coccidiosis than the controls as judged from weight records and morbidity, although the mortality and caecal lesions in the two groups were similar. R.T.L.

(114c) The data presented indicate that the diet of hens influences the resistance of their offspring to the effects of infection with *Ascaridia galli*, even when the chicks are all fed on the same diet.

R.T.L.

115—Praxis. Berne.

- a. PERRET-GENTIL, A., 1950.—"A propos du traitement de la filariose à *Loa-loa* par le hétrazan." 39 (2), 41.

(115a) Clinical symptoms of a case of loiasis contracted in Africa disappeared after the daily administration for seven days of six tablets of hétrazan each containing 0.05 gm. There was a slight attack of urticaria. A loa had previously been removed from the conjunctiva but at no time were microfilariae present in the blood.

R.T.L.

116—Presse Médicale.

- a. BONNIN, H. & MORETTI, G. F., 1950.—"De l'anémie par ankylostomes." 58 (10), 158-159.

117—Proceedings of the Helminthological Society of Washington.

- a. DOUGHERTY, E. C., RAPHAEL, Jr., J. C. & ALTON, C. H., 1950.—“The axenic cultivation of *Rhabditis briggsae* Dougherty and Nigon, 1949 (Nematoda: Rhabditidae). I. Experiments with chick embryo juice and chemically defined media.” 17 (1), 1-10.
- b. ALLEN, M. W. & JENSEN, H. J., 1950.—“*Cacopaurus epacris*, new species (Nematoda: Criconematidae), a nematode parasite of California black walnut roots.” 17 (1), 10-14.
- c. CHITWOOD, B. G., 1950.—“The male of *Dracunculus insignis* (Leidy, 1858) Chandler, 1942.” 17 (1), 14-15.
- d. DIKMANS, G. & MAPES, C. R., 1950.—“The lungworm, *Protostrongylus rufescens*, in domestic sheep, *Ovis aries*, in the United States.” 17 (1), 16-24.
- e. SEGHETTI, L., 1950.—“An improved method of mixing fecal suspensions for nematode egg counts.” 17 (1), 26-27.
- f. THORNE, G. & ALLEN, M. W., 1950.—“*Paratylenchus hamatus* n.sp. and *Xiphinema index* n.sp., two nematodes associated with fig roots, with a note on *Paratylenchus anceps* Cobb.” 17 (1), 27-35.

(117a) Dougherty *et al.* describe experiments on the first successful axenic cultivation of *Rhabditis briggsae* Dougherty & Nigon, 1949. Medium I, based on the Kidder-Dewey medium for the ciliate *Tetrahymena*, with the addition of chick embryo juice promoted axenic growth of a normal type. Medium II, slightly differing in some ingredients, also supplemented with chick embryo juice, allowed rapid growth but no reproduction. It is suggested that in the latter case some inhibitory factor is at work, and that the essential factor(s) of chick embryo juice may be protein. J.B.G.

(117b) Allen & Jensen give an illustrated description of *Cacopaurus epacris* n.sp., found attacking the roots of California black walnut, *Juglans hindsii* Jepson, in one walnut orchard at Visalia, Tulare County, California. Features in which the new species is differentiated from *C. pestis* Thorne, 1943 are indicated. T.G.

(117c) From a study of two male specimens taken from *Procyon lotor*, *Dracunculus insignis* appears to differ from *D. medinensis* in the length of the gubernaculum, which measures 119 μ , and in the presence of five or six pre-anal genital papillae. R.T.L.

(117d) Although known in various wild ruminants in North America, *Protostrongylus rufescens* has not hitherto been found in domesticated sheep in the United States. Dikmans & Mapes agree with Dougherty & Goble (1946) in considering *Synthetocaulus kochi* as a synonym of *P. rufescens*. R.T.L.

(117e) Seghetti gives an easier and speedier method of preparing sheep faeces for egg counting, which is a modification of Lane's direct centrifugal flotation technique. Instead of triturating the faeces by hand an electric blender is used. A homogeneous suspension is obtained in one minute or less. R.T.L.

(117f) Thorne & Allen give illustrated technical descriptions of *Paratylenchus hamatus* n.sp. and *Xiphinema index* n.sp., found in soil about the roots of fig trees (*Ficus carica*) showing a condition known as “leaf drop”. Many specimens of *P. hamatus* were observed attached by their spears to rootlets, and both nematodes may contribute to the decline in growth and vigour shown by the fig trees. In the note on *Paratylenchus anceps*, dimensions and a brief account of its principal anatomical features are given. It is pointed out that the possession by immature specimens of a very long neck and a well developed spear render it possible that the nematodes belong to the genus *Cacopaurus* rather than *Paratylenchus*. T.G.

118—Proceedings of the Society for Experimental Biology and Medicine.

- a. BUEDING, E. & KOLETSKY, S., 1950.—“Content and distribution of glycogen in *Schistosoma mansoni*.” 73 (4), 594-596.

(118a) Bueding & Koletsky report on the carbohydrate metabolism of *Schistosoma mansoni*. It is estimated that this trematode utilizes an amount of glucose equivalent to

about one-fifth of its dry weight. A method of fixing and staining the helminths for making a rough estimation of their glycogen content and its distribution in the body is recorded. From 13.6% to 29.0% of the dry matter in the males and 2.7% to 5.0% of that in the females consisted of glycogen, which in both sexes was deposited principally in the musculature, parenchyma, tubercles and suckers. The glycogen content of the older males was greater than in the younger specimens. P.L.L.E.R.

119—Proceedings of the Zoological Society of London.

- a. REWELL, R. E., 1950.—"Report of the Society's Pathologist for the year 1948." 119 (4), 791-802.
- b. SAVAGE, R. M., 1950.—"Observations on some natural epizootics of the trematode *Polystoma integerrimum* among tadpoles of *Rana temporaria*." 120 (i), 15-37.

(119a) Filarial worms were found under the skin of the trunk of two *Chamaeleon melleri* which died at the Zoological Society's Gardens in 1948. A species of *Setaria* occurred in the intestine of a West African blue duiker, *Cephalophus caeruleus schultzei*. A mass of filarial worms filled the aorta, even entering the heart cavity, of a *Heloderma suspectum*. *Toxascaris leonina*, which packed the intestines and bronchi, caused death in a snow leopard, *Felis uncia*. R.T.L.

(119b) Savage has studied seven natural epizootics of *Polystoma integerrimum* in *Rana temporaria* tadpoles. The fluke eggs hatch at the end of April or beginning of May, and a second batch hatches about one month later. Some of the larvae become neotenic and lay eggs which hatch as secondary larvae in July, but in those ponds where the tadpoles metamorphose in June the neotenic cycle is abortive because there are then no tadpoles. In other ponds many tadpoles can be found in July or August and become infected with secondary larvae. Parasitism appears to have no deleterious effect on the tadpoles. There is a tendency for a tadpole to be either heavily infected or free from infection. R.T.L.

120—Puerto Rico Journal of Public Health and Tropical Medicine.

- a. MALDONADO, J. F., HERNÁNDEZ MORALES, F., VELEZ HERRERA, F. & THILLET, C. J., 1950.—"The role of hetrazan in the control of filariasis bancrofti." 25 (3), 291-299. [Also in Spanish pp. 300-309.]
- b. HERNÁNDEZ MORALES, F., PRATT, C. K., OLIVER GONZÁLEZ, J. & MALDONADO, J. F., 1950.—"The treatment of Manson's schistosomiasis with anthiomaline, ureastibamine, neostibosan, and subanose. Report of a two-year follow-up." 25 (3), 310-313. [Also in Spanish pp. 314-318.]
- c. PONS, C. A. & REYES, F. M., 1950.—"Manson's schistosomiasis in Puerto Rican soldiers." 25 (3), 319-323. [Also in Spanish pp. 324-328.]
- d. HERNÁNDEZ MORALES, F., SANTIAGO STEVENSON, D., PÉREZ SANTIAGO, E., OLIVER GONZÁLEZ, J. & MALDONADO, J. F., 1950.—"The acid-ether concentration test, the rectal biopsy, and the skin test in the diagnosis of Manson's schistosomiasis." 25 (3), 329-334. [Also in Spanish pp. 335-341.]
- e. MALDONADO, J. F., ACOSTA MATIENZO, J. & VELEZ HERRERA, F., 1950.—"Biological studies on the miracidium of *Schistosoma mansoni* Part 3. The role of light and temperature in hatching." 25 (4), 359-366. [Also in Spanish pp. 367-376.]
- f. OLIVER GONZÁLEZ, J., BIAGGI, N., ACEVEDO, C., MARIOTTA, D. A., HERNÁNDEZ MORALES, F., SANTIAGO STEVENSON, D. & PÉREZ SANTIAGO, E., 1950.—"Studies on Manson's schistosomiasis in Puerto Rico I. Result of control methods in an endemic area." 25 (4), 387-398. [Also in Spanish pp. 399-410.]
- g. OLIVER GONZÁLEZ, J. & THILLET, C. J., 1950.—"The effect of Necroton on *Schistosoma mansoni* infection in mice." 25 (4), 411-414. [Also in Spanish pp. 415-418.]

(120a) An account is given of the results following the administration of hetrazan for the control of filariasis in an isolated institution, where no mosquito control measures were being taken and the inmates rarely slept under mosquito nets. Over 10% of the residents had microfilariae, and 14% of the mosquitoes were found to be infected. As a result of therapy the microfilariae disappeared from the blood of the majority of the cases and the rate of infection in mosquitoes was drastically reduced. The introduction of new cases and poor co-operation by some of the inmates prevented complete eradication from

the institution. Treatment for periods longer than one week will probably produce the best results, and in a programme of control the entire population should be treated. R.T.L.

(120b) Anthiomaline has proved more effective in the treatment of *Schistosoma mansoni* infection than ureastibamine, neostibosan or stibanose. One death occurred and toxic reactions were frequent during ureastibamine administration. Only in the cases treated with anthiomaline were eggs absent during a follow-up period of three years. R.T.L.

(120c) Microscopical examination of liver sections obtained from post-mortems on 35 Puerto Rican soldiers showed *Schistosoma mansoni* tubercles in 14 instances, i.e. 42%. Eggs were found in the mucosa of the colon in only one case. R.T.L.

(120d) A comparative study of the relative diagnostic value of stool examination by acid-ether concentration, skin test and rectal biopsy in schistosome cases in Puerto Rico showed that the skin test and rectal biopsy were far superior to stool examination. The skin test is the easiest to perform, but none of the three tests can be used to the exclusion of the others as any one might be negative and the others positive. R.T.L.

(120e) A comparative study of the rates of hatching of *Schistosoma mansoni* eggs showed that light is not essential but that the time of hatching is prolonged in darkness for over a week. The stimulating effect of light is in direct proportion to its intensity and to the length of exposure. Very few eggs from human faeces hatch within 15 minutes of exposure to strong illumination, but the majority hatch within two hours and under room illumination within 24 hours, whereas those obtained from the livers of infected mice hatch within one hour and in room illumination within two hours of exposure. Temperature is not a stimulating factor in irradiation. R.T.L.

(120f) It is estimated that *Schistosoma mansoni* occurs in about 10% of the general population of Puerto Rico and attains to about 40% in Jayuya, Utuado, Guayama-Arroyo and Barranquitas. Experimental control measures applied in the rural district "Los Pena", in the municipality of Río Piedras comprised (i) treatment of infected persons, (ii) educational measures, (iii) installation of sanitary privies, (iv) improvement of water supply, (v) biological control of molluscs in the neighbouring creek. The population was approximately 655. The infection rate of 44.6% in February 1947 was reduced to 4.5% by September 1949. This is attributed mainly to treatment and education. Infection in children between 6 and 15 years of age fell from 60% to 8.9%, and has remained low after a lapse of two and a half years. R.T.L.

(120g) "Necroton", an antinecrotic and antitoxic substance isolated from liver, has been used extensively for the clinical treatment of hepatic disturbances and carbon tetrachloride poisoning. When administered to white mice two weeks after infection with *Schistosoma mansoni* it diminished the degree of hepatic cirrhosis: 16 out of 21 animals (76.1%) showed no macroscopic lesions in comparison with 11.1% in the controls. "Necroton" prevents cirrhosis and causes liver regeneration with the disappearance of already established cirrhosis. It is pointed out that liver cirrhosis due to schistosome infection in human subjects is a long-time process and may differ from that induced experimentally in mice. R.T.L.

121—Report of the Minister for Agriculture. Dublin.

- a. ANON., 1950.—"Veterinary College of Ireland. Parasitology Section." 18th (1948-49), pp. 44-45.
- b. ANON., 1950.—"Veterinary Research Laboratory. Parasitology Section." 18th (1948-49), pp. 85-87.
- c. ANON., 1950.—"Report of the Agricultural Department, University College, Dublin, for the year 1948-49. (7) Agricultural zoology. (ii) Eelworms." 18th (1948-49), Appendices pp. [16]-[17].

(121a) It is reported that a donkey was found infected with *Fasciola hepatica* and redworms, and a horse had fertile hydatids in the liver. 39% of 57 samples of faeces from

cattle showed a mixed infection with *F. hepatica* and bowel worms; 18 specimens of *Cysticercus bovis* were identified. *Paramphistomum cervi* occurred in ruminants: 12 different cases from cattle from various parts of the country have been met with during the year. Eggs of *Uncinaria stenocephala* and *Toxocara canis* were detected in 41% of 22 samples of dog faeces.

R.T.L.

(121b) Of 3,196 faecal samples from bovines received from veterinary surgeons and farmers, 48% showed fluke eggs and 30% contained trichostrongyle eggs; *Ascaris* or strongyle eggs were present in 344 out of 490 equine faecal samples. Hexachlorethane was administered experimentally to a small number of calves heavily infected with liver-fluke but no definite conclusions were reached.

R.T.L.

(121c) Conferences have been held with inspectors of the Department of Agriculture concerning ways and means of dealing with the potato root eelworm problem, particularly in the potato seed-growing districts, and plans for the establishment of a laboratory to deal specifically with this problem. Attention is also being given to eelworm infestation in strawberries.

R.T.L.

122—Revista de la Facultad de Agronomía y Veterinaria. Buenos Aires.

- a. MORINI, E. G., 1950.—“Parásitos del género *Raillietina* en el *Gallus gallus* de República Argentina.” Year 1949, 12 (2/3), 288–301. [English summary p. 300.]

(122a) Domestic fowls in the neighbourhood of Buenos Aires harbour *Raillietina* (*R. tetragona*, *R. (R.) echinobothrida* and *R. (Skrjabinia) cesticillus*). Descriptions are given briefly, while more detail is given of the vectors and habitat by Morini, who considers that helminth parasitism may be becoming more frequent.

P.A.C.

123—Revista Ibérica de Parasitología.

- a. LÓPEZ-NEYRA, C. R., 1950.—“La *Tenia madagascariensis* Davaine 1869, oriunda cubana, y el *Inermicapsifer cubensis* (Kouri, 1939) son una misma especie, correspondiente al género *Raillietina* (Fuhrmann, 1920) López-Neyra 1934.” 10 (2), 187–203.
- b. GONZÁLEZ CASTRO, J., 1950.—“Relaciones mutuas entre helmintos y microbios. Papel vectorial de los helmintos.” 10 (2), 205–273; (3), 379–385. [English summary pp. 382–385.]
- c. CABALLERO, E., 1950.—“Rectificación.” 10 (2), 280.
- d. GUEVARA POZO, D. & MARTOS LÓPEZ, F., 1950.—“Modificaciones que imprimen las sustancias vermidianas sobre la actividad fisiológica de órganos en perfusión. Nota I. Cestodos y corazón de rana.” 10 (3), 337–355. [English summary p. 354.]
- e. SIMÓN VICENTE, F., 1950.—“Nematodos parásitos gástricos del *Sus scrofa domesticus* L. de España.” 10 (3), 363–377.

(123a) López-Neyra notes that the original specimens of *Taenia madagascariensis* were obtained from children who had not long since left the West Indies. The species is referred to the genus *Raillietina* sensu stricto. He considers that all the cases reported by Loeches & Alavez, Kourí and others from the neotropical regions of the New World can be referred to a single species identical with *T. madagascariensis*, the correct citation being *Raillietina madagascariensis* (Davaine, 1869). *R. demerariensis* becomes a synonym of *R. madagascariensis*. López-Neyra has also re-examined the type and only specimen of *R. loechesalavezi* [which he has previously reduced to synonymy with *R. madagascariensis*—for abstract see Helm. Abs., 18, No. 114h], originally described as showing neither rostellum nor hooks, and reports that after at least 10 years in Canada balsam small hooks can now be plainly seen. On the basis of this finding and of a consideration of the structure of the excretory system and of the relations of the uterus and vitellaria in the New World forms, López-Neyra considers that they cannot be referred to the genus *Inermicapsifer*, which is moreover purely an African genus. The question of the assignment of *Inermicapsifer* to the Anoplocephalidae or to the Davaineidae must be deferred until the life-cycle is known.

E.M.S.

(123c) Caballero reinstates the species *Neorenifer crotali* Self, 1945, and declares the genus *Neochetosoma*, to which he referred this species in 1949, to be a nomen nudum.

E.M.S.

(123d) Guevara Pozo & Martos López have extracted *Moniezia expansa* using Clark's technique, and used the resulting products to examine their effect on the action of frog heart. There appear to be two fractions, with contrasting effects. A water-soluble substance had a tonic exciting action while an alcohol-soluble extract had a depressant action, which was however of short duration.

P.A.C.

(123e) Simón Vicente finds that pigs in certain provinces of Spain frequently harbour spirurid and trichostrongyle parasites. He describes and figures again *Ascarops strongylina*, *Physocephalus sexalatus*, *Simondsia paradoxa* and *Hyostrongylus rubidus*. Notes on the life-histories are given.

P.A.C.

124—Revista Kuba de Medicina Tropical y Parasitología.

- a. KOURÍ, P. & KOURÍ, J., 1950.—"Discusiones en torno al *Inermicapsifer cubensis* (Kouri, 1938)." 6 (1/2), 1-7.
- b. JOYEUX, C. & BAER, J. G., 1950.—"Sobre la posición sistemática del género *Inermicapsifer* Janicki, 1910 (Cestoda)." 6 (1/2), 7-9.
- c. BAER, J. G., KOURÍ, P. & SOTOLONGO, F., 1950.—"Anatomía, posición sistemática y epidemiología de *Inermicapsifer cubensis* (Kouri, 1938) Kouri, 1940, cestode parásito del hombre en Cuba." 6 (1/2), 9-13.
- d. DOLLFUS, R. P., 1950.—"Amoenitates helminthologicae.—VI. *Raillietina* (R) *kouridovali* R.Ph. Dollfus e *Inermicapsifer cubensis* (P. Kouri) P. Kouri." 6 (1/2) 13-14.
- e. BAYLIS, H. A., 1950.—"Una nueva infección humana por cestode en Kenya. *Inermicapsifer arvicanthidis*, parásito de la rata." 6 (1/2), 14-19.
- f. LÓPEZ-NEYRA, C. R., 1950.—"Raillietinosis humanas. Estudios de parasitología comparada sobre Raillietininae parásitas humanas y en especial de las formas neotropicales." 6 (1/2), 19-26.
- g. CALVO FONSECA, R., 1950.—"Contribución a la estadística de *Inermicapsifer cubensis* (Kouri, 1938) Kouri, 1940. Reporte de siete nuevos casos." 6 (1/2), 26-27.

(124a) Kourí & Kourí discuss the confusion which has existed concerning the morphology and hence the validity and synonymy of the species *Inermicapsifer cubensis*, now accepted as valid. They point out that the first use of the full citation was on p. 426 of a text-book entitled "Lecciones de Parasitología y Medicina Tropical" by Kourí, Basnuevo & Sotolongo, published 15th June 1940, and thus pre-dating Stunkard's use of the name in the September-December 1940 issue of *Rev. Med. trop. Parasit., Habana*. The paper is followed by translations or reprintings of those scientific papers which are most relevant to the argument [see below, Nos. 124b-f].

E.M.S.

(124b) [This is a translation of a paper in *Bull. Soc. Path. exot.*, 1949, 42 (11/12), 581-586. For abstract see *Helm. Abs.*, 18, No. 348e.]

(124c) [This is a translation of a paper in *Acta tropica, Basle*, 1949, 6 (2), 120-130. For abstract see *Helm. Abs.*, 18, No. 132b.]

(124d) [This is a translation of a paper in *Ann. Parasit. hum. comp.*, 1948, 22 (3/4), 277-278. For abstract see *Helm. Abs.*, 17, No. 8f.]

(124e) [This is a translation of a paper in *Trans. R. Soc. trop. Med. Hyg.*, 1949, 42 (6), 531-542. For abstract see *Helm. Abs.*, 18, No. 121a.]

(124f) [This is an extract from a paper in *Rev. Ibér. Parasit.*, 1949, 9 (3), 299-362. For abstract see *Helm. Abs.*, 18, No. 114h.]

125—Revue de l'Agriculture. Brussels.

- a. BRUEL, E. VAN DEN, 1950.—“Le nématode doré de la pomme de terre, *Heterodera rostochiensis* Wollenweber.” 3 (2), 123-136.

(125a) Van den Bruel describes the morphology and life-cycle of *Heterodera rostochiensis*, its ecology, the pathology of its attack on potatoes, and factors concerned in its spread and control. The two latter aspects are complicated by the fact that the presence of the eelworm may be unsuspected for some years after its introduction. Chemical methods of control are at present too costly for the temporary nature of their effects, and reliance must be placed on suitable rotations and avoiding further spread; potatoes and tomatoes should be excluded from infested land for a minimum of five years in the first instance, and then grown at intervals of not less than three years. B.G.P.

126—Scientific Agriculture.

- a. KOCH, L. W. & STOVER, R. H., 1950.—“Recent field tests on the effect of soil fumigants upon brown rootrot of tobacco in Ontario.” 30 (6), 256-260.

(126a) Koch & Stover have tested five chemicals against brown root-rot (due to meadow nematodes) in the susceptible Harrow Velvet and more resistant Green Briar varieties of burley tobacco at Harrow, Ontario. The chemicals were 15% methyl bromide in xylene, ethylene dibromide (Dowfume W-40), chloropicrin, dichloro-propylene with dichloro-propane (Dow N) [=D-D mixture], and parathion, all used at 30 gal. per acre. In addition parathion, 15% methyl bromide, and 10% methyl bromide in carbon tetrachloride were used at 50 gal. per acre. All were applied by hand-injector in the tobacco rows (40 in. apart), 4 to 5 in. deep and at 8-in. intervals, without sealing. Judging by both degree of root injury and green weight yields, D-D and chloropicrin gave the best results, followed by ethylene dibromide and methyl bromide at the higher rate. Roots submitted to Dr. G. Steiner contained meadow nematodes “very close to one that is called the broad-headed nematode”, *Tylenchorhynchus claytoni* and *Ditylenchus* sp. B.G.P.

127—Speculum.

- a. KOUTZ, F. R., 1950.—“Animal parasites reported from man.” 3 (2), 3, 34-35.

(127a) This briefly annotated check-list of parasites of domesticated animals which have been reported from man contains 7 adult and 3 larval cestodes, 3 trematodes, 15 nematodes and one acanthocephalan. Koutz states that “it is very easy to identify animal parasites either by examination of the adult or their larva or ova”, but advises reference to a parasitology laboratory. R.T.L.

128—Tierärztliche Umschau.

- a. MEYER, O., 1950.—“Über Cuprosolvin.” 5 (9/10), 171-172.
b. BEHRENS, H., 1950.—“Der Einfluss des Phenothiazins auf das Blutbild der Schafe.” 5 (11/12), 190-192.

(128a) Meyer reports on his successes with “Cuprosolvin” in the treatment of equine strongylosis. He administers the drug in doses far above those recommended by the manufacturers, with excellent results and with no untoward effects other than occasional transient colicky symptoms. He has given up to 50 gm. to foals, and one 4-year-old horse with severe colic received four doses of 200 gm. of Cuprosolvin at weekly intervals: this treatment was entirely successful. Meyer also gives advice on the administration of the drug and discusses its action on the strongyles. A.E.F.

(128b) Behrens has carried out experiments on eleven sheep to determine the effect of phenothiazine on the blood picture. Dosages given were: (i) 1 gm. per kg. body-weight in a single dose, (ii) 1 gm. per kg. body-weight spread over three days, and (iii) 2 gm. per kg. body-weight spread over three days. In all cases there was a reduction in the erythrocyte

count (varying between 8.8% and 28.6%) and a decreased haemoglobin content (varying between 2% and 30%). The leucocyte counts showed no changes and there were no clinical symptoms. The changes in the blood were at their peak between the second and sixth days; after 15 days the blood picture was back to normal. A.E.F.

129—Tijdschrift voor Diergeneeskunde.

- a. SWIERSTRA, D., 1950.—"Maagdarmstrongylosis bij het rund." 75 (6), 237-244.

(129a) Swierstra deals with the aetiology, clinical symptoms, diagnosis, curative treatment and prophylaxis of parasitic gastro-enteritis in cattle in the Netherlands. In making a diagnosis, such conditions as paratuberculosis (Johne's disease), distomiasis and especially deficiency diseases have to be taken into consideration. Because the animal is usually infected by more than one species the clinical symptoms are of little aid in establishing the species involved. Microscopic examination of the eggs, because of their similarity in shape and size, is of no great assistance either. The stage of development of the eggs in freshly passed faeces indicates whether the helminths are situated in the abomasum and duodenum or in the rest of the small intestine and the large bowel. In almost pure infections with *Haemonchus contortus* the marked anaemia is unaccompanied by the diarrhoea which occurs when other species are also present. Egg-counts are not always of great value since the smaller species produce far fewer eggs than the larger ones. Less than 300-600 eggs per gramme of faeces may be encountered in affected animals. At autopsies the *Trichostrongylus* and *Cooperia* spp. and the nodules containing the larvae of *Oesophagostomum radiatum* may be easily missed. Rotational grazing, avoidance of overstocking and administration of phenothiazine in small doses are essential prophylactic measures. Swierstra is convinced that actual deaths from gastro-intestinal infections are less than from lungworm infection, but losses due to retarded development, decreased productivity and wastage of fodder are of great importance. The species involved in the Netherlands are: *Ostertagia ostertagi*, *Trichostrongylus axei*, *Cooperia* spp., *Haemonchus contortus*, *Nematodirus filicollis*, *Oesophagostomum radiatum* and *Bunostomum phlebotomum* (which is of slight importance). P.L.LER.

130—Transactions of the American Microscopical Society.

- a. HANSEN, M. F., KELLEY, G. W. & TODD, A. C., 1950.—"Observations on the effects of a pure infection of *Moniezia expansa* on lambs." 69 (2), 148-155.
- b. VAN CLEAVE, H. J. & LYNCH, J. E., 1950.—"The circumpolar distribution of *Neoechinorhynchus rutili*, an acanthocephalan parasite of fresh-water fishes." 69 (2), 156-171.
- c. READ, C. P., 1950.—"The rat as an experimental host of *Centrorhynchus spinosus* (Kaiser, 1893), with remarks on host specificity of the Acanthocephala." 69 (2), 179-182.
- d. GORIOSSI, F. & DEGIUSTI, D. L., 1950.—"A modified gold chloride impregnation method for trematode nerve tissue." 69 (2), 183-185.
- e. EDNEY, J. M., 1950.—"Productivity in *Clinostomum marginatum* (Trematoda: Clinostomatidae)." 69 (2), 186-188.
- f. MARTIN, W. E., 1950.—"*Euhaplorchis californiensis* n.g., n.sp., Heterophyidae, Trematoda, with notes on its life-cycle." 69 (2), 194-209.
- g. MORGAN, B. B. & SCHILLER, E., 1950.—"A note on *Porrocaecum depressum* (Zeder, 1800) (Nematoda: Anisakinae)." 69 (2), 210-213.
- h. VOGEL, M. & FOX, W., 1950.—"A new anoplocephalid cestode, *Oochoristica scelopori* n.sp., from the Pacific fence lizard, *Sceloporus occidentalis occidentalis*." 69 (3), 236-242.
- i. BYRD, E. E., 1950.—"*Alloglyptus crenshawii*, a new genus and species of digenetic trematode (Plagiorchiinae) from the chameleon." 69 (3), 280-287.
- j. VAN CLEAVE, H. J. & BULLOCK, W. L., 1950.—"Morphology of *Neoechinorhynchus emydis*, a typical representative of the Eoacanthocephala. I. The praesoma." 69 (3), 288-308.

(130a) *Moniezia expansa* in experimentally infected lambs caused retardation in growth and some reduction in the haemoglobin and the packed cell volume of erythrocytes. After the infection was lost the percentage of eosinophils and basophils increased. No scouring was observed but there was some delay in reaching marketable weight. The

infected oribatid mites used as intermediaries were tentatively identified as *Galumna virginensis*. R.T.L.

(130b) A study of extensive collections of Acanthocephala in Washington and representative material from Wisconsin, Canada and Alaska have furnished incontestable evidence of the practically continuous geographical distribution of *Neoechinorhynchus rutili* in fresh-water fishes of the northern holarctic region. As considerable variability is shown by this species, which has given rise to erroneous interpretations, a detailed description is included. Three types of host relationship exist, namely cumulative hosts, dispersal hosts and adventitious hosts, and explain the wide geographical territory which this strictly fresh-water parasite has been able to occupy in the circumpolar or circumboreal areas. R.T.L.

(130c) Larvae of the acanthocephalan *Centrorhynchus spinosus* from the body-cavity of a snake, *Thamnophis sirtalis*, developed into adults when fed to albino rats. The normal hosts are birds of prey. It was observed that the proboscis characters are determined early in life and are not correlated with the size or age of the worms. R.T.L.

(130d) A method is described for the impregnation of the nerve elements in sections of *Haematoloechus* from the lungs of frogs. The specimens are fixed in warm 1% formic acid solution, washed, dehydrated, cleared in cedarwood oil, embedded in paraffin wax and sectioned. The sections are taken through xylol and graded alcohols to 1% formic acid solution, rinsed and immersed in a 0.2% solution of gold chloride and placed in an oven at 39.5°C. They must be protected from evaporation and precipitation of the gold chloride. After rinsing, the gold chloride is reduced by immersion in 1% formic acid solution kept at 39.5°C., and then washed, dehydrated, cleared and mounted. The method is not applicable to *in toto* mounts. R.T.L.

(130e) *Clinostomum marginatum* readily infected *Helisoma trivolvis* less than two months old, but not year-old specimens. There was a continuous production of rediae by rediae, and simultaneously of cercariae, for two or more years. This was not related to seasonal changes. R.T.L.

(130f) A new heterophyid, *Euhaplorchis californiensis* n.g., n.sp., was obtained by feeding hatchery-reared chicks with naturally and experimentally infected *Fundulus parvipinnis parvipinnis*, taken from an old canal in Playa del Rey, California. The horn-shell snail, *Cerithidea californica*, is the first intermediate host. *Euhaplorchis* shows affinities with *Haplorchis* from which it differs in the greater posterior extension of the intestine and in the basic pattern of the excretory system, which is of the "mesostoma" type with the main excretory ducts subdividing in the mid-body region. The prepharynx is well developed, the seminal receptacle has a posterior location and the seminal vesicle is single. The larval forms *Cercaria indicæ* VII and possibly VIII, *C. parvomelaniae* and *C. pleurolophocercus* I are tentatively assigned to the new genus. R.T.L.

(130g) An illustrated description is given of *Porrocaecum depressum*, collected from various species of owls in North America. New North American hosts are *Strix varia*, *Otus asio naevus* and *Asio wilsonianus*. R.T.L.

(130h) Voge & Fox describe *Oochoristica scelopori* n.sp. from the small intestine of *Sceloporus occidentalis occidentalis* in California. It can be distinguished by the size of the cirrus pouch, suckers and onchospheres as well as by the number of the testes. P.A.C.

(130i) Byrd describes *Alloglyptus crenshawii* n.g., n.sp. from the small intestine of *Anolis carolinensis* in Georgia. This digenetic trematode is assigned to the subfamily Plagiorchiinae, but can be distinguished from other genera by the presence of a large receptaculum seminis, the distribution of the vitellaria, the lack of cuticular spines, the short caeca and the confinement of the gonads to the cephalic third of the body. It appears to be closely related to the genus *Glypthelmins*. P.A.C.

(130j) Van Cleave & Bullock describe in great detail the structure of the praesoma of *Neoechinorhynchus emydis*, this being the first part of a general morphological description of the species. Within the proboscis are found many muscles dealing with the eversion and contraction of the proboscis and the neck. The apical organ and central nervous system are located there, as is also the sling of the proboscis receptacle, an organ heretofore unrecognized, appearing as a sacculated structure, the function of which is probably to cause ventral flexion of the praesoma. P.A.C.

131—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. PUGH, A. M., 1950.—"Ova of *Schistosoma haematobium* in the appendix and gall-bladder of a European." [Demonstration.] 44 (1), 1.
- b. NEAL, J. B., 1950.—"A puzzling helminth found by chance in the intestinal wall of a human being." [Demonstration.] 44 (1), 1-2.
- c. BUCKLEY, J. J. C. & FAIRLEY, N. H., 1950.—"Demonstration of a cestode, *Bertiella*; a rare parasite in man and recorded for the first time as a human infection in Africa." [Demonstration.] 44 (1), 2.
- d. DESOWITZ, R. S., 1950.—"Enterohepatitis (blackhead) of turkeys." [Demonstration.] 44 (1), 2.
- e. LEROUX, P. L., 1950.—"Experimental schistosomiasis mansonii in a cat." [Demonstration.] 44 (1), 3.
- f. LEROUX, P. L., 1950.—"What is *Filaria martis* Gmelin, 1790, the type species of the genus *Filaria* Mueller, 1787, on which the term filariasis (vel filariosis) is based?" [Demonstration.] 44 (1), 3-4.
- g. LEROUX, P. L., 1950.—"The caudal papillae in the male of *Loa loa* (Cobbold, 1864) Castellani and Chalmers, 1913." [Demonstration.] 44 (1), 4.
- h. LEROUX, P. L., 1950.—"*Onchocerca cervicalis* Railliet and Henry, 1910, is a doubtful synonym of *O. reticulata* Diesing, in Herman, 1841." [Demonstration.] 44 (1), 5.
- i. SANDOSHAM, A. A., 1950.—"*Paragonimus* sp. from the lung of the Kra monkey from Malaya." [Demonstration.] 44 (1), 5.
- j. SANDOSHAM, A. A., 1950.—"A species of dicrocoeliid fluke from the pancreas of an orang-utang." [Demonstration.] 44 (1), 5.
- k. SANDOSHAM, A. A., 1950.—"A cercaria belonging to the 'Elvae' group producing dermatitis in man in Malaya." [Demonstration.] 44 (1), 5-6.
- l. SANDOSHAM, A. A., 1950.—"A species of *Enterobius* from the feline douroucouli (*Aotus felinus*)." [Demonstration.] 44 (1), 6.
- m. HAWKING, F., SEWELL, P. & WEBBER, W. A. F., 1950.—"Technique of testing chemotherapeutic compounds on microfilariae *in vitro*." [Demonstration.] 44 (1), 8.
- n. GORDON, R. M., KERSHAW, W. E., CREWE, W. & OLDROYD, H., 1950.—"The problem of loiasis in West Africa with special reference to recent investigations at Kumba in the British Cameroons and at Sapele in Southern Nigeria." 44 (1), 11-41. [Discussion pp. 41-47.]
- o. WILSON, T., 1950.—"Hetrazan in the treatment of filariasis due to *Wuchereria malayi*." 44 (1), 49-66.
- p. NEWSOME, J. & HALAWANI, A., 1950.—"The treatment of urinary bilharzia in Egypt by Miracil D." 44 (1), 67-76.
- q. ERFAN, M. & TALAAT, S., 1950.—"Trivalent sodium antimony gluconate in the treatment of schistosomiasis." 44 (1), 123-126.

(131b) Sections of the wall of the colon showed a polymorphonuclear peritoneal exudate with some foreign body giant-cell reaction, and portions of a nematode which is tentatively identified as *Enterobius vermicularis*. R.T.L.

(131c) Specimens of *Bertiella* sp. were passed, after tetrachlorethylene treatment, by an 8-year-old girl who had spent fourteen months in Kenya. This is the first record of its occurrence in man from the African mainland. R.T.L.

(131e) The lesions found in a cat twelve months after experimental infection with *Schistosoma mansonii* are briefly described. The small size of the parasites recovered suggests that the cat is an unsuitable host. There were no parasites in the liver, the lungs were free from bilharzia pigment and no eggs were present in the faeces. R.T.L.

(131f) *Filaria martis*, the type species of *Filaria* sensu stricto was originally described from *Martes martes*. Recent descriptions have been based on specimens from other hosts,

including *Mellivora capensis*, *Ictonyx capensis* and *Orycteropus capensis*. leRoux points out, however, that in specimens from two of these hosts the anus is not subterminal in the female and there are ill-defined lateral caudal appendages near the tip of the tail. Several observers have apparently mistaken a duct of the caudal glands at the tip of the tail for the anus. The vulva in specimens from all three African hosts is very near the mouth. The worms have thick-shelled embryonated eggs. The absence of microfilariae in the blood and tissues and the position of the vulva suggest discharge of the eggs through a break in the skin and a non-blood-sucking intermediate host. Owing to these morphological and biological differences, the filarioid genera present in man should not be grouped with the genus *Filaria* and the commonly used term "filariasis" should be replaced by a more appropriate term.

R.T.L.

(131g) The number and arrangement of the caudal papillae in tissue-inhabiting helminths are more variable than is generally accepted. A specimen of *Loa loa* showed four large pedunculated pre-cloacal and one large post-cloacal papillae lateral to the anus on the right side and three large pre-cloacal and one large post-cloacal papillae on the left side. In addition there was a pair of small asymmetrically placed lateral ad-cloacal papillae and two pairs of small papillae well behind the anus. Two papilla-like structures, evidently the ducts of caudal glands, project from the lateral aspect of the tail at approximately the level of the last pair of small post-cloacal papillae.

R.T.L.

(131h) *Onchocerca cervicalis* cannot be treated as a synonym of *O. reticulata* as the "rugae" of the latter are more closely spaced. The characters of these rugae and the transverse striations of the cuticle of specimens of *O. reticulata* received from Budapest suggest that this species of the horse is more closely related to *O. volvulus* of man and *O. lienalis* of cattle than to *O. gutturosa* of cattle. *O. cervicalis*, a common parasite of horses in the London area, is probably a synonym of *O. gutturosa*, but a more extensive search is necessary before the absence of *O. reticulata* in Britain can be established.

R.T.L.

(131i) A *Paragonimus* sp. is reported from a monkey for the first time. It occurred in the crab-eating monkey, *Macaca irus irus*, of the Malayan jungle.

R.T.L.

(131j) A microcoeliid fluke is reported for the first time from the pancreas of the orang-utang *Pongo pygmaeus*.

R.T.L.

(131k) In Malaya a dermatitis is caused by large apharyngeal longifurcate eye-spotted cercariae with spinous cuticle, possibly belonging to the genus *Trichobilharzia*. They are extruded by *Limnaea crosseana*.

R.T.L.

(131l) *Enterobius* sp., showing interlabia as an unusual feature of this genus, is reported for the first time from the South American monkey *Aotus felineus*.

R.T.L.

(131m) An *in vitro* test of chemotherapeutic compounds on microfilariae is described. Microfilariae obtained from the blood of cotton-rats are placed in small glass tubes in a medium of equal parts serum and Ringer's solution containing 0.2% glucose, and their motility is observed microscopically. It is pointed out that the action of drugs *in vitro* is not parallel to their therapeutic action *in vivo*.

R.T.L.

(131n) This extensive study of loiasis deals with the species and distribution of the Chrysops vectors at Kumba and Sapele, their breeding and biting habits and the reaction of the host to the bites. The development of the parasite in the vector, the deposition of the infective stage by the vector and its development, the migration of the adult in the host, and the journeying and periodicity of the larvae are then observed. Next the reactions of the human host and the development of immunity are considered. In treatment, published work has shown that the best results follow the administration of hetrazan. Tentative suggestions for control are outlined, namely the use of screening and repellents. 60% DMP [dimethyl phthalate] is satisfactory and the clearing of forest and bush would

probably push back the normal habitat of the Chrysops and reduce or even eliminate their visits to human habitations. Measures directed against adult and immature Chrysops are discussed, but more information is needed before definitive recommendations can be made. It is suggested that monkeys are the chief source of food when man is unavailable.

R.T.L.

(1310) Hetrazan is shown to have an effect on *Wuchereria malayi* similar in many respects to that on *W. bancrofti*. In symptomless carriers the microfilariae disappear rapidly from the peripheral blood or remain at a very low level for a year or more. In patients with clinical symptoms, hetrazan reduces the liability to frequent attacks of filarial fever, but the sharp febrile response which occurs in microfilaria carriers would preclude the use of the drug for unsupervised mass treatment. It is observed that the considerable risk of reinfection which occurs in an endemic area may complicate the interpretation of the results of later re-examinations. The investigation was carried out in the state of Kedah in the north-west corner of the Malay peninsula where the filarial rate reached 50% to 60%. It took all the persuasive powers of the local Malayan health inspector and promises of a cash payment to induce many symptomless carriers to enter hospital for treatment. R.T.L.

(131P) In cases of bilharziasis treated with miracil-D it is impossible, under ordinary hospital conditions, to distinguish genuine relapses due to lack of effectiveness of the drug from reinfections or the maturation of pre-infections. Clinical tests are reported which show that miracil-A is approximately as active as miracil-D and produces much the same gastro-intestinal symptoms, but it is too early to make definite recommendations for its use. The dosage of miracil-A or miracil-D was 1.0 gm. morning and evening for three days. This was repeated at monthly intervals for a maximum of three courses. The cases were followed for six months after the first treatment. Of eight patients treated with miracil-A, four were heavily infected and were cured by three courses of treatment; of the remainder with light infections, three were not completely cured by the two courses which were administered. Of 26 patients treated with miracil-D, 10 of the 13 heavily infected cases were cured by two or three courses, and 12 out of 13 mild cases were cured by one or two courses. Enteric-coated tablets reduced and frequently prevented the side-effects, but the contained miracil-D was not satisfactorily absorbed in patients with intestinal disease. The citrate and mandelate of miracil-D were less irritating than the hydrochloride.

R.T.L.

(131Q) As the toxicity of trivalent sodium antimony gluconate had been shown by Goodwin to be less than one-third that of tartar emetic and less than one-half that of sodium antimony tartrate, it has now been tested in 36 cases of urinary bilharziasis. There were few reactions and a striking absence of coughing. Vomiting occurred in two cases after the 4th and 5th injections and an urticarial rash appeared in one case after the 3rd injection. Eight of the 30 patients who received a six-day course were passing living bilharzia eggs 1 to 2½ months after treatment. Erfan & Talaat confirm that the gluconate is better tolerated than tartar emetic and sodium antimony tartrate and consider that it is effective in schistosomiasis.

R.T.L.

132—Veterinariya.

- a. GARKAVI, B. L., 1950.—[Streptocara infection in ducks.] 27 (1), 30. [In Russian.]
- b. KRASTIN, N. I., 1950.—[Elucidation of the biological cycle of a second vector of thelaziasis in cattle. (Preliminary account.)] 27 (2), 20–21. [In Russian.]
- c. ANON., 1950.—[Good attention to the control of helminthiasis in domestic animals.] [Editorial.] 27 (4), 1–5. [In Russian.]
- d. SHCHERBOVICH, I. A., 1950.—[Macracanthorhynchus infection of swine.] 27 (4), 6–11. [In Russian.]
- e. FEOKTISTOV, P. I., 1950.—[Epizootology and prophylaxis of ascaridiasis of fowls.] 27 (4), 11–16. [In Russian.]
- f. ORLOV, I. V., 1950.—[The administration of anthelmintic preparations.] 27 (4), 17–19. [In Russian.]

- g. KALININ, I. V., 1950.—[Prophylaxis of Dictyocaulus infection in calves.] 27 (4), 21-22. [In Russian.]
- h. MIKLASHEVSKI, V. N., 1950.—[Research on the application of ichthyol in the treatment of the complications of verminous broncho-pneumonia and dystrophy of sheep.] 27 (4), 24-25. [In Russian.]
- i. FARZALIEV, I. A., 1950.—[Fascioliasis of horses and its treatment.] 27 (4), 25-26. [In Russian.]
- j. BADANIN, N. V., 1950.—[Concerning the epizootology of parascariasis of horses under urban conditions in Central Asia.] [Abstract.] 27 (4), 26-27. [In Russian.]
- k. ANTIPIN, V. P., 1950.—[Concerning the differential diagnosis of equine infectious anaemia and strongylosis.] [Abstract.] 27 (4), 27. [In Russian.]
- l. KOCHNEV, P. N., 1950.—[Fasciola in the lungs of cattle.] [Abstract.] 27 (4), 27. [In Russian.]
- m. KOLMAKOV, V. I., 1950.—[Intratracheal injection of iodine solution against Dictyocaulus infection of calves.] [Abstract.] 27 (4), 27. [In Russian.]
- n. KHOLOSHCHANOV, V. A., 1950.—[An allergic method for the diagnosis of haemonchiasis in sheep.] [Abstract.] 27 (4), 27-28. [In Russian.]
- o. GORBAN, N. I. & VOROB'EV, M. M., 1950.—[Measures for the control of Macracanthorhynchus infection of pigs.] [Abstract.] 27 (4), 28-29. [In Russian.]
- p. RADCHENKO, M. S., 1950.—[Use of sodium fluoride against ascariasis in piglets.] [Abstract.] 27 (4), 29. [In Russian.]
- q. KAYUKOV, S. G., 1950.—[Anthelmintic treatment of fowls with carbon tetrachloride administered directly into the crop.] [Abstract.] 27 (4), 29. [In Russian.]
- r. PANOV, 1950.—[Anthelmintic treatment of poultry with carbon tetrachloride paste.] [Abstract.] 27 (4), 29. [In Russian.]
- s. INKOV, N. M., 1950.—[Use of phenothiazine as an anthelmintic in dogs.] [Abstract.] 27 (4), 29-30. [In Russian.]
- t. RYAZANTSEV, V. F., 1950.—[Comparative valuation of methods of examining soil for helminth eggs.] [Abstract.] 27 (4), 30. [In Russian.]
- u. BOLKHOVITINOV, D. Z., 1950.—[New principles in the diagnosis of helminthiasis by demonstration of the eggs.] 27 (4), 47-49. [In Russian.]
- v. ANON., 1950.—[Veterinary specialists—Deputies of the Supreme Soviet of the U.S.S.R. Konstantin Ivanovich Skryabin.] 27 (5), 16. [In Russian.]

(132a) Garkavi found that *Streptocara crassicauda* was the cause of death in young ducklings up to 1½ months old and that 24.6% of the *Gammarus lacustris* from their habitat were infected with *S. crassicauda* larvae. C.R.

(132b) Krastin in an examination of 6,869 specimens of *Musca amica* found some infected with the microfilariae of *Thelazia*. Six weeks after placing the larvae on the eye region of a calf seven days old, one specimen of *T. gulosa* was obtained. In Krastin's opinion it is very probable that *M. amica* is also an intermediate host of *T. skrjabini*. C.R.

(132c) This is a résumé and review of the results obtained in the control of helminthiasis in the first of three years of planned development of collective and state farms for animal production. According to the author, greater attention should be paid to control of helminths, which are still the cause of heavy losses particularly among young animals. Veterinary surgeons should work out plans for control of helminthiasis according to instructions existing in the Soviet Union. C.R.

(132d) Shcherbovich deals with the biology, pathological symptoms and lesions, epizootology, diagnosis and control of *Macracanthorhynchus hirudinaceus*. In Russia, its intermediate hosts are *Melolontha melolontha*, *M. hippocastani* and *Cetonia aurata*. The development of larvae in the intermediate hosts takes 3½-4 months if the infection occurs in early spring, but if in July or later the larvae reach the infective stage in the autumn of the following year (12-13 months). The larvae survive in the intermediate hosts for 2-3 years. They reach maturity in the final host in 70-110 days and the length of life of the adults is 10-23 months. There is a very high incidence of these parasites in Russia. Darling's method is recommended for faecal examination. The husbandry of pigs should be adjusted as far as possible to avoid the intermediate hosts. C.R.

(132e) According to Feoktistov the eggs of *Ascaridia lineata* do not develop in the period September to April, but they can survive the winter, and in May to August the eggs

develop to the infective stage. The time of development varies, depending on the temperature and environment of the eggs. The early stages of development are destroyed in open runs by sunshine. The eggs stop developing at 40°C. and at or over 45°C. they perish. Below 17°C. they do not develop but remain viable. For their development the humidity must not fall below 60%. Direct sunshine kills eggs in the spring-summer period in 1-1½ days. In chickens 16-18 days old *A. lineata* reaches maturity in 35 days, and in adult hens (7-9 months old) in 58 days. The longevity of the parasite is 9-14 months, depending on the age at which the birds become infected. In a study of seasonal incidence, the author examined 4,549 birds postmortem over a period of two years and found that increase of infection begins in September to October. In November to January it reaches its peak, and in February to April is maintained at the same level. In May the percentage of infection falls. For the control of *A. lineata* he recommends cleanliness and the treatment [not stated] of infected birds. C.R.

(132f) Orlov, in a discussion of the anthelmintic value of phenothiazine and hexachlorethane, recommends the use of these drugs as a suspension with bentonite (10 parts drug to 2-3 parts bentonite). C.R.

(132g) As a prophylactic measure against the infection of calves with *Dictyocaulus*, Kalinin recommends that young calves should be grazed separately from cattle older than one year, and when sent to grazing, should be put on grass where no old cattle with *Dictyocaulus* have been previously grazed. C.R.

(132h) Miklashevski reports that in 26 sheep with slight clinical symptoms of dictyocauliasis (lobar pneumonia), intravenous injections of 1% ichthyol gave complete cure. He gave 50 c.c. daily for 14 days, with an initial dose of 15 c.c., i.e. 665 c.c. in all. In nine cases with lobular pneumonia the results varied. C.R.

(132i) Farzaliev found 110 to 160 *Fasciola hepatica* and *F. gigantica* at post-mortem examination of eight horses. Treatment with 9-15 c.c. carbon tetrachloride in 10 c.c. capsules produced good results in 13 infected foals. There were no toxic effects. C.R.

(132j) From December 1946 to August 1948, Badanin examined 740 horses, varying in age from a few months to 25 years, in order to investigate the seasonal dynamics of parascariasis in horses under town conditions in Central Asia. 21.2% of these horses were infected with *Parascaris* (up to 3 years of age, 23%; 4-10 years, 21.2%, and older horses 17.9%). The seasonal incidence during the first quarter of the year was 18.6%, in the second quarter 15.6%, in the third quarter 20.7% and in the fourth quarter 28.2%. The minimum occurred in March, and infection then rose to a peak by July and remained at this level until January. Distribution of eggs in faeces was as follows: 1-3 years old 11.2, 4-10 years and older 9.5, in one portion of the solution examined by the Fülleborn method. The average seasonal distribution of eggs in faeces was: first quarter 8.93, second quarter 8.87, third quarter 9 and fourth quarter 11.5. Badanin recommends that the horses should be given anthelmintic treatment in June and afterwards transferred to grass for 10-15 days. C.R.

(132k) In a horse diagnosed as having infectious anaemia, Antipin found at post mortem a septic aneurysm in the arteria mesenterica cranialis. He is of the opinion that this was the cause of the periodic septic symptoms which are also characteristic of chronic infectious anaemia. C.R.

(132l) Kochnev, when examining the lungs of cattle over a period of 10-20 days, found ten cases with *Fasciola* in the lungs. All these animals had shown positive reactions to the intradermal tuberculin test, but at autopsy showed no tuberculosis. He considers that when *Fasciola* occurs in the lungs of cattle, the tuberculin test may be non-specific. C.R.

(132m) Kolmakov reports good results against *Dictyocaulus* in 95 calves after the intratracheal injection of iodine solution. C.R.

(132n) Kholoshchanov has employed an intradermal test in 13 lambs experimentally infected with *Haemonchus*. The two antigens used, an extract of fresh sexually mature *Haemonchus* in Ringer-Locke solution, and an extract of *Haemonchus* in saline plus 5% chloroform, were identical in their properties. The antigen (0.2 c.c.) was introduced into the caudal fold and the oedema was measured with callipers. Animals infected with *Haemonchus* gave positive results, but in control animals the results were negative. When this test was employed on 100 sheep due for slaughtering, positive results were obtained in 46 of the sheep. After slaughter, fully grown *Haemonchus* were found in 43; only in three sheep (6.5%) were there no *Haemonchus*. In 54 of the sheep which reacted negatively, 36 (66.7%) showed no *Haemonchus*, while 18 (33.3%) had immature *Haemonchus*. Examination of blood during and after the tests showed that the number of leucocytes increased to 145-187%, but fell to normal in the following 5-7 days. C.R.

(132o) Gorban & Vorobev describe the clinical symptoms, pathological lesions and diagnosis of *Macracanthorhynchus hirudinaceus* in pigs. Prophylactic measures are recommended such as the prevention of rooting, the destruction of faeces etc. C.R.

(132p) Radchenko gave sodium fluoride in doses of 0.1 gm. per kg. body-weight in milk to 695 piglets varying in age from 2-6 months. Two died during the treatment and in some cases there were complications (vomiting, lack of appetite). Radchenko considers that in the absence of a specific anthelmintic against *Ascaris* in piglets, sodium fluoride can be used with good results. C.R.

(132q) Kayukov obtained very good results against *Ascaridia* in hens, with carbon tetrachloride in doses of 2-3 c.c. introduced directly into the crop. This was done after feeding the hens with 10-15 gm. of corn. C.R.

(132r) Panov recommends carbon tetrachloride mixed with flour for the treatment of ascaridiasis in poultry. For an adult hen the dose is as follows: 30 gm. flour is mixed with 45 c.c. warm water, and to this mixture is added 2 c.c. of carbon tetrachloride. This "paste" is force-fed into the crop. C.R.

(132s) Inkov used phenothiazine against hookworm, ascarids and *Trichuris* in dogs, in doses of 0.2-0.3 gm. per kg. body-weight, with negative results. C.R.

(132t) Ryazantsev gives the following method of examining soil for helminth eggs. To a 5-gm. sample of soil is added 50 c.c. of 10% HCl. After standing for 5-7 minutes, this is put through a sieve and centrifuged for 2-3 minutes. The HCl solution is poured off and a saturated solution of KCl with glycerin is added to the sediment. This mixture is then centrifuged. The eggs float to the surface and are taken off with a loop. C.R.

(132u) Bolkhovitinov describes the following method of faecal examination as particularly useful for helminth eggs of higher specific gravity than saturated salt solution. 6-8 c.c. of saturated salt solution of specific gravities varying from 1.050 to 1.220 is poured into a centrifuge tube. 1-2 gm. of faeces are then thoroughly mixed with 10-15 c.c. of water. The centrifuge tube is then slightly tilted in a tube holder and the faecal solution is sieved through two layers of muslin into the tube with the salt solution. It is essential that the fluid should flow very slowly down the walls of the funnel and tube, so that the faecal solution forms a uniform layer on the surface of the salt solution. The tube is then

centrifuged for 2-5 minutes at 1,000-2,000 revolutions per minute, or left standing for 30 minutes to 1½ hours. The sediment in the tube is then examined for the presence of eggs. This method is particularly useful for *Dicrocoelium* and *Fasciola* eggs. C.R.

133—Veterinarski Arhiv.

- a. DELAK, M., 1950.—"Naša prva iskustva s natrijevim fluoridom kod askaridoze svinja." 20 (1), 13-28. [German summary p. 28.]

(133a) Delak administered pure sodium fluoride experimentally to 107 pigs of various breeds, ages and degrees of fatness. On the basis of these tests, he recommends a dose of 0.15 gm. per kg. body-weight. The dose is divided into two equal parts given morning and evening as 1% of the dry feed. If necessary the treatment can be repeated 8-14 days later. Host reactions were rare and consisted in brief anorexia, vomiting and diarrhoea. E.M.S.

134—Veterinary Medicine.

- a. ANON., 1950.—"Trichina infection declines." 45 (6), 247.
- b. ARMISTEAD, W. W., 1950.—"Heartworms." 45 (7), 267-269.

(134a) Federal meat inspection regulations in the U.S.A. recognize two categories of pork products, namely (i) fresh cuts, and (ii) items that are sold as ready to serve without further cooking but have been processed by heating, freezing or curing. An examination of 3,171 samples of the latter category indicated that 26 (0.81%) contained encapsulated *Trichinella* larvae but that these had been destroyed by processing. These results compare favourably with those obtained between 1934 and 1939 when 3.32% of the samples examined contained larvae. R.T.L.

(134b) *Dirofilaria immitis* in dogs is now widespread in the U.S.A., although 10 or 15 years ago it was apparently mainly confined to coastal or swampy regions. This is probably due to increased movement of dogs belonging to army personnel, and for hunting, breeding, and dog shows, as well as to more accurate diagnosis by veterinary practitioners. Various reasons are advanced for failure to find adult worms at post-mortem although microfilariae are present in the blood, and for differences in reports on the occurrence of periodicity. Armistead has found very little evidence of true periodicity. The symptoms of heartworm infection are variable, but loss of stamina is sufficiently consistent to be of diagnostic help. The best method of examining blood for microfilariae is to examine the serum exuded from 2 c.c. of whole blood which has been allowed to clot. R.T.L.

135—Veterinary Record.

- a. GIBSON, T. E., 1950.—"Critical tests of phenothiazine as an anthelmintic for horses." 62 (23), 341-342.
- b. SLOAN, J. E. N., 1950.—"Carbon tetrachloride dosage in sheep. Some observations on possible chronic toxicity." 62 (26), 380-381.
- c. BRANDER, G. C., 1950.—"Sodium fluoride: a discussion of its use in the treatment of ascariasis in pigs." 62 (28), 404-405.
- d. McCLEERY, E. F. & BLAMIRE, R. V., 1950.—"Bovine cysticercosis in Great Britain: some cases and comments." 62 (33), 477-479.
- e. ALLEY, J. C., 1950.—"Caricide in the treatment of *Dirofilaria immitis* in Zanzibar." 62 (35), 522.

(135a) Gibson tested the efficiency of single 30-gm. doses of phenothiazine in five horses. Faecal worm counts for the 48 hours after dosing are compared with post-mortem counts four days after treatment. It is shown that there was a high degree of efficiency

against mature *Trichonema*, *Triodontophorus*, *Gyalocephalus* and *Oesophagodontus*. This dose, however, had little effect on immature forms or on *Strongylus* spp. J.W.G.L.

(135b) Although 1 c.c. carbon tetrachloride was administered to lambs as a drench in 4 c.c. of mineral oil at monthly intervals for periods up to 9 months, there was no evidence of chronic intoxication at post-mortem. *Strongyloides papillosus* was apparently unaffected but good results against *Cooperia curticei* were obtained with 2-c.c. and 3-c.c. doses, while 1 c.c. produced a notable reduction in *Bunostomum trigonocephalum*. There was no fluke infection in the animals used in these experiments. R.T.L.

(135c) Sodium fluoride is an efficient anthelmintic against *Ascaris* in pigs when given either as 1% of a dry meal or at the rate of 0.1–0.15 gm. of commercial sodium fluoride per lb. body-weight (equivalent to 0.075–0.1 gm. technical sodium fluoride per lb. body-weight). If given in a wet mash the minimum dose should be employed and the pigs must be weighed. R.T.L.

(135d) McCleery & Blamire report on two cases of generalized cysticerciasis observed in oxen at a London abattoir. The numbers of "active" and "non-active" cysts recovered from the heart, kidneys, diaphragm and the different parts of the head and certain groups of carcass muscles are given. One animal yielded 828 cysts of which 211 were "non-active". The head yielded 119 cysts and the carcass muscles 694 (the longissimus dorsi 104 and the muscles of the hind legs 243). The heart and the external masseter muscles carried 11 (9 "non-active") and 57 (5 "non-active") cysts respectively. The second case yielded 513 cysts of which 19 were "non-active". The head contained 68 cysts of which 36 were from the external masseter muscles. The heart contained 76 cysts (8 "non-active") and the carcass muscles 341 cysts of which 10 were "non-active". The authors criticize the routine examination for *Cysticercus bovis* laid down in England and Wales as being insufficient. It is recorded that recent abattoir statistics indicate that the average incidence of cysticerciasis in cattle slaughtered in England and Wales amounts to about 0.3%. One batch of 225 oxen from Scotland contained 12 infected animals. A suggestion is made that legislation should be adopted to standardize the treatment of infected carcasses. Freezing at -10°C . for at least 14 days is considered necessary to ensure the death of the parasites. P.L.ler.

(135e) Alley gives a clinical report on six cases of *Dirofilaria immitis* in dogs in Zanzibar. Treatment with "Caricide" was successful in one case. In another case, apparent cure was effected by an injection of 1 c.c. of 10% antrycide methylsulphate. J.W.G.L.

136—Virginia Medical Monthly.

- a. VELKOFF, C. L., 1950.—"Correlation of appendicitis and *Oxyuris vermicularis*." 77 (2), 75–76.

137—Wiener Tierärztliche Monatsschrift.

- a. KRAGJCEK, J., 1950.—"Leberegelbefall beim Schwein." 37 (4), 287.

(137a) One pig among a large number slaughtered in Styria was found to be infected with *Dicrocoelium dendriticum*. Only the left lobe of the liver was affected, its bile ducts being enlarged to 2–4 times their normal size and crammed with parasites. Liver-fluke is common in cattle and sheep in the area, but has not previously been observed in pigs. B.M.S.

138—Zooprofilassi.

- *a. SCOLARI, C., 1950.—[On a case of parasitism by *Strongylus edentatus* (Looss 1900) in the retained testis of a cryptorchid horse.] 5, 1-2, 5-7. [In Italian.]

NON-PERIODICAL LITERATURE

- 139—GELFAND, M., 1950.—“Schistosomiasis in South Central Africa. A clinico-pathological study.” Cape Town & Johannesburg: The Post-Graduate Press, 239 pp., 25/-.

Gelfand incorporates much personal experience in this comprehensive clinico-pathological study of schistosomiasis in South Central Africa. After an outline of the history of schistosomiasis, the life-cycle of the schistosome worms and a clinical classification of the various manifestations of the disease, its incidence in Southern Rhodesia as revealed by the examination of urine and faeces in the Salisbury Native Hospital is discussed. A chapter is devoted to urinary schistosomiasis, its symptoms, the lesions of the bladder and ureters, and its relation to secondary infection, stone and cancer. This is followed by one on intestinal schistosomiasis, its symptoms, the distribution of eggs in the large and small bowel, the procedure in and results obtained by sigmoidoscopy, the value of rectal snippings in diagnosis and the relation to cancer. Further chapters deal with the frequency of affections of the appendix and the associated pathological changes, and the relationship of schistosome infection to acute appendicitis; pulmonary infections and their relation to arterial disease and asthma; radiological procedure and signs; hepatic disease and the incidence of portal cirrhosis; involvement of the spleen; the lesions in cases of primary hepatic carcinoma; the frequency of involvement of the gall-bladder, pancreas, brain and spinal cord and of the female genitalia. The monograph concludes with a review of diagnostic aids. There is an extensive bibliography. [The synonymous terms bilharziasis and schistosomiasis replace one another sporadically throughout the text.]

R.T.L.

- 140—NATIONAL VETERINARY MEDICAL ASSOCIATION, 1950.—“Report on diseases of farm livestock. Section VI. The husbandry and diseases of goats.” National Veterinary Medical Association, Publication No. 18, 52 pp.

The helminth fauna of goats is practically the same as that of sheep, but on open range goats have a preference for browsing and are consequently less likely to suffer from nematode infections. When confined to small paddocks or on restricted pastures they are very prone to suffer from parasitic gastro-enteritis and parasitic bronchitis. Two species of *Moniezia* which occur in sheep also occur in goats in Britain, where the intermediate host is *Scutovertex minutus*. The cysts of *Taenia hydatigena*, *T. multiceps*, *T. ovis* and *Echinococcus granulosus* occur in goats in Britain. Of the nematodes, *Haemonchus contortus*, *Ostertagia circumcincta*, *Trichostrongylus axei* and *T. vitrinus* are important while *Nematodirus filicollis* and *Cooperia* spp., although frequently present in large numbers, are considered to be of slight pathological significance. Goats may also be infected with *Fasciola hepatica* and *Paramphistomum cervi*.

R.T.L.

- 141—OOSTENBRINK, M., 1950.—“Het aardappelaaltje (*Heterodera rostochiensis* Wollenweber), een gevaarlijke parasiet voor de eenzijdige aardappel-cultuur.” Wageningen : H. Veenman & Zonen, 230 pp. [English summary pp. 215-224.]

In this extensive monograph, Oostenbrink presents not only a detailed survey of the distribution of *Heterodera rostochiensis* in Holland, but also the results of numerous experiments on the biology and control of the parasite. It is possible here to refer to only a few salient points. Since its first discovery in 1941 near Katwijk, over 200,000 soil-sample examinations have revealed its present somewhat limited extent. The new Dutch three-course rotation law should keep it within bounds. Apart from potato and tomato, the eelworm very slightly attacks *Solanum dulcamara* and *Hyoscyamus niger*, and also the following American non-tuberiferous *Solanum* spp. which have become adventive in Holland : *S. nitidibaccatum*, *S. luteum*, *S. rostratum*, *S. triflorum*, and possibly *S. gracile* (new host records). Cysts can live dry in a bottle for at least five years, and for 15 months submerged in water. One potato plant may support up to 50,000 cysts. When a new infestation of clean land occurs, there may be an incubation period of four to nine years before disease symptoms appear : the latter can happen at 100 larvae per 20 c.c. of soil in unfavourable circumstances, but need not happen at eight times this concentration if conditions favour the plant. During incubation the annual rate of increase (potatoes each year) is about 10-fold : during a rotation there is about a 50% reduction each year [this justifies the three-course rotation law]. Cysts continue development on dug tubers. Chemical control (benzene hexachloride, D.D.T., calcium cyanamide, methyl bromide, ethylene dibromide, D-D mixture, formalin, chloropicrin) gave varying results : the first four were ineffective ; the others gave eelworm kills and/or improved yields for one crop, when the eelworm population reverted to its high level. Composts and manures improve yields of both tubers and cysts ; their use may postpone failure by one year. In view of their higher standard deviation, larval counts are in practice no improvement on counts of viable cysts [in population studies].

B.G.P.

- 142—*OPPERMANN, T., HIERONYMI, E. & SONNENBRODT, A., 1950.—“Lehrbuch der Krankheiten des Schafes.” Hanover : M. & H. Schaper, 5th edit., 328 pp., DM. 23.

- 143—PADWICK, G. W., 1950.—“Manual of rice diseases.” London : Commonwealth Mycological Institute, viii + 198 pp., 30/-.

Padwick devotes Chapter V of this book to “Diseases caused by Nematodes”, pp. 104-115 being given to a consideration of “Ufra” or “Dak Pora” due to *Ditylenchus angustus* (Butler) Filipjev. He deals with distribution of the disease and damage caused, agronomic practices in relation to disease incidence, symptoms and aetiology. In this last section there is an illustrated description of the causal nematode. Biology and control of the parasite are also discussed. On p. 115 there is a brief account of another rice disease named “Akhet-Pet” which is said to be due to an undetermined nematode.

T.G.

- 144—SCOTLAND, DEPARTMENT OF AGRICULTURE, 1950.—“Scheme for the inspection of growing crops of potatoes, 1950.” Edinburgh : Department of Agriculture for Scotland, 4 pp.

The Department of Agriculture for Scotland has undertaken to inspect potato crops during the growing season 1950 with a view to the issue of certificates or reports in respect of purity and freedom from disease. Applicants must sign a declaration that the crops entered for inspection are on land on which potatoes have not been grown more than once in the previous seven years, i.e. in the period 1943 to 1949. The roots of a number of plants in each crop inspected will be examined to determine whether there is visible infestation

with potato-root eelworm. A. (Scot.), A. (Scot.) N.I., H. (Scot.), H. (Scot.) N.I. Stock Seed Certificates and Grade B Reports will be issued in respect of growing crops which, among other qualifications, "are free from visible infestation with potato root eelworm". All seed sold under a Stock Seed Certificate must be submitted for inspection and sealing by the Department before the potatoes are moved from the farm. Reports indicating their unsuitability for use as seed will be issued in respect of all crops with plants showing on examination of the roots that they are not free from visible infestation with potato-root eelworm. No application will be entertained for the inspection of any crop of less than half an acre in extent.

R.T.L.